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THE
FINAL REPORT
OF THE
COMMITTEE
OF THE
PHILADELPHIA MEDICAL SOCIETY
ON THE
CONSTRUCTION OF INSTRUMENTS,
AND
THEIR MODE OF ACTION,
IN THE
RADICAL CURE OF HERNIA;
(FROM THREE YEARS' OBSERVATION).
ACCOMPANIED BY A COLLATION OF THE PRACTICAL FACTS
CONTAINED IN THE
PRELIMINARY REPORT:
WITH
NOTES, ILLUSTRATIONS, AND ADDITIONAL CASES OF HERNIA,
AND
DISEASES RESEMBLING HERNIA:
ALSO
ILLUSTRATIONS OF CERTAIN INSTRUMENTS DESIGNED FOR THE TREATMENT
OF OTHER DISEASES EFFECTING SIMILAR PARTS.

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8071

BY HEBER CHASE, M. D.

MEMBER OF THE ACADEMY OF NATURAL SCIENCES, HONORARY MEMBER OF THE
PHILADELPHIA MEDICAL SOCIETY, ETC.

There is no reason to despair of being able, one day, of effecting a radical cure in
most cases of Hernia.—Tavernier.

PHILADELPHIA:
PUBLISHED BY J. G. AUNER.
1837.

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1837

E. G. DORSEY, PRINTER,
LIBRARY STREET.

“Fully impressed with the extreme caution required in forming conclusions concerning changes of structure taking place in parts of the body concealed, not only by the integuments, but by tendinous matter and fascia, and where the nature of the disease renders the opportunity of post-mortem examination exceedingly rare, your Committee has been desirous of avoiding that blameable haste in the decision of important questions which has too frequently given to plausible, but ingenious methods of treatment, a temporary reputation, to the abuse of public confidence, and the injury of the profession, by granting to empiricism the weight and influence of great names.”—*Preliminary Report.*

*Index
Hernia*

*At a meeting of the Philadelphia Medical Society held
April 29th, 1837,*

Dr. R. Coates completed the reading of the Report of the Committee on the Radical Cure of Hernia, when, on motion,

Resolved, That the same be accepted and the Committee be discharged, and that the thanks of the Society be tendered to the Committee for the able and elaborate manner in which they have attended to the duties of their appointment.

Resolved, That a Committee of Two be appointed to request the publication of the Report of the Committee on the Radical Cure of Hernia in the American Journal of the Medical Sciences.

TO
MY FATHER
THE FOLLOWING PAGES
ARE
DEDICATED,
WITH FEELINGS WHICH NEED NOT BE EXPRESSED,
BY HIS
AFFECTIONATE SON,
THE AUTHOR.

TO THE READER.

THE appearance of the following pages seems to demand some apology, after the publication of the two able Reports of the Committee on Hernia, appointed by the Philadelphia Medical Society in 1834, whose attention has been so long and so laboriously directed to the investigation of the action and construction of the instruments which are described in the body of this work.

It may be considered as an assumption on the part of the inventor of the apparatus which has had the good fortune to receive the decided approval of that Committee, that he has ventured to add to the testimony of such judges some notes, explanations, and additional cases from the results of his own experience. But there are extenuating circumstances, which, it is hoped, will be deemed a sufficient excuse for the course which I have taken.

The two publications of the Committee are separated by an interval of more than a year; they appeared in a strictly professional journal, and were consequently circulated almost exclusively among medical men. The

narrative of many of these cases was commenced in the Preliminary Report, while their conclusion was presented in the Final Report. This arrangement, though sufficiently convenient for those whose life is, or should be one round of laborious study and research, rendered it difficult for less practised inquirers to trace the history of the facts upon which the opinions of the Committee were grounded; and as a large portion of those who are affected with hernia are fitted by education and intelligence to estimate the value of these Reports, which are not less distinguished by their clearness and simplicity than by their rigid caution and profundity of thought, it was considered highly desirable that the whole subject should be presented to the popular reader in the most accessible form. For this purpose, the details of the cases contained in the Preliminary Report have been prefixed to the continuation of the same cases in the Appendix to the Final Report, and many extracts from the former document have been appended, in the form of notes, to the latter more elaborate paper; so that the whole subject is presented to the reader in the form most convenient for reference, not only to the general inquirer, but even to the surgeon.

Untiring as was the attention of the Committee, there were many causes which rendered it impossible for them to visit, or for me to bring before them all the cases of importance which came under my notice during the three years of investigation; and as the Committee, with a degree of conscientiousness worthy of all praise, confined their record of facts to those cases personally observed by themselves, and their

inferences from those facts, the public has not yet received all the evidence which may be regarded as interesting: I have ventured, therefore, to continue in the Appendix details of a few of these cases, extracted from my note book.

The Committee have most scrupulously avoided the discussion of all debatable opinions in the course of their labours; but as some of these questions have a practical bearing of great value, I have addressed several notes to the Chairman of the Committee at different times, requesting his individual views on some of these subjects: to all which inquiries he has replied with frankness, and in a manner suited to the importance of the question. His letter on the *modus operandi* of trusses in effecting the radical cure of hernia, (almost a treatise in itself,) was published in my work on *Hernia*, p. 107. Some extracts from this letter, and two other communications which illustrate or carry out the views of the Committee, will be found among the notes appended to the Report.

No liberties have been taken with any part of the text derived from the Committee, and every note not extracted from the Preliminary Report is marked with the initials of the person on whose authority it is given.

As varicoccele is a disease bearing some little resemblance to hernia in its external appearance, and as it is not unfrequently mistaken for the latter even by medical practitioners, my attention has been drawn particularly to this complaint by the number of cases

presenting themselves while wearing trusses for the relief of a tumour which is always rendered worse by the use of such instruments: and having found varicocele difficult to manage by any plan of treatment now in use, I have added to the present publication a description and figure of a new suspensory for the relief of the very unpleasant symptoms produced by this affection. It has succeeded not only in giving relief, but even in effecting cures, to an extent beyond any anticipation entertained at the time of its construction.

The numerous cases of uterine affections and vaginal disease occurring in females who have placed themselves under my charge for the cure of hernia, or who have been brought to me by some of their friends while under treatment, has induced me to attempt an improvement in the syringe designed for vaginal injections. The description and figure of my instrument for this purpose conclude the work: they are extracted from a paper previously published in the *American Journal of the Medical Sciences*, and are now thrown before the profession and the public for the purpose of introducing an addition to the ordinary surgical apparatus, which has been found highly serviceable in my hands.

The most difficult part of my task remains to be performed—the expression of my deep obligation to the gentlemen of the Committee on Hernia for the very unusual labour and time which they have devoted to the investigation of my herniary apparatus.

Had the Committee been influenced by feelings which are natural as well as general in all places where competition is carried to extremes, and in all professions, when over-crowded with aspirants, they might have performed their duties with credit, and as such duties are usually performed; but not with the vigour of research, the long and patient observation, and the entire publicity required to render their opinions available in enabling me to cope with the prejudices and heavy interests combined against this innovation—an innovation which tended to destroy a profitable and extensive business, by taking the treatment of hernia by trusses from the hands of the instrument-maker to place it in those of the surgeon.

Of the many kindnesses and useful hints received from the Chairman especially, whether in his official or individual capacity, it is difficult to speak in terms suited to the occasion. This obligation is not the less keenly felt, because this gentleman is distinguished as a severe critic and unbending judge—one who allows no private friendship or personal influence to warp his opinions or suppress the expression of them, when the good of humanity or the defence of a principle is at stake—one who, when called upon to express an opinion on a professional point, does not pause to inquire how his answer may affect *this man's wishes* or *that man's reputation*, but has been ever ready to sacrifice his own feelings and interests for the public good.

The Final Report of the Committee is a model for this kind of essay: it is at once clear, unpretending

and profound, being one of the happiest efforts of a pen well known to the profession, as almost replacing the pencil, when called to the discussion of complex mechanical questions, and which shrinks not from a physiological argument, however involved in its ramifications. I know that the writer will forgive me when I proclaim it one of my proudest triumphs to have convinced him by the force of facts, in opposition to his firm persuasion, that it was possible to effect the perfect retention and consequent cure of hernia by mechanical means alone.

To the medical profession generally, I tender my sincere thanks for the manner in which they have noticed my efforts to improve the treatment of a most distressing and too frequently fatal disease; and those gentlemen who have employed the novel instruments in various parts of the United States and elsewhere, many of whom have communicated valuable remarks on their action and their results, will oblige me by receiving this public testimonial of my warm acknowledgements.

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REPORT

ON THE

RADICAL CURE OF HERNIA.

The Committee appointed by the Philadelphia Medical Society, at the session of the 27th of December, 1834, with directions to investigate the character of STAGNER'S TRUSS, and other proposed means of radical cure of Hernia, respectfully*

REPORT:

That since the date of their Preliminary Report, (read Dec. 5th and 12th, 1835,) they have devoted much time and thought to the important investigation submitted to their charge; but the numerous mooted questions originally involved with it, have been gra-

* The claim of Mr. Stagner extends only to the truss armed with a wooden block similar to that which is called the Inguinal block of Dr. Hood; and as this was condemned in the Preliminary Report of the Committee, (see p. 310-323,) the Final Report contains scarce any allusion to the truss of Mr. Stagner. It is chiefly in the heading, which is extracted from the minute of the appointment of the Committee, that reference to that instrument appears in the later proceedings of the Committee.

H. C.

dually narrowed down in number and compass, in three different ways; firstly, by the decision of several physiological points; secondly, by the results of the analysis of the mechanical construction of instruments; and thirdly, by the introduction of improvements in the formation of trusses, calculated to remove the objections waged against some portion of the apparatus represented as imperfect in the Preliminary Report.

In offering to the society the conclusions deduced from the observations of the Committee, it is deemed unnecessary to enter at length into *all the evidence upon which those conclusions have been founded*, for much of this matter is already before the public in a form sufficiently authentic, and accessible for every useful purpose; and the attempt to include the whole, would swell this report beyond all reasonable or necessary limits. Reference will, therefore, be freely made to the following documents, which have been produced and published in consequence of the investigations of the Committee: 1st. The Preliminary Report, published in the American Journal of the Medical Sciences, Vol. XVII. p. 307. 2nd. Note of R. COATES, M. D., on two new Hernial Blocks. Ibid. 543. 3d. Letter from the same gentleman to HEBER CHASE, M. D.,* in reply

* At the time of the appearance of the Preliminary Report, the author of this work was pursuing his studies in the University of Pennsylvania, under the auspices of which institution he afterwards received the degree of Doctor of Medicine. This will explain the employment of the title of Mr. prefixed to his name in the Preliminary Report, and that of M. D. appended in the Final Report.

to a note of the latter, on the *modus operandi* of instruments in Dr. CHASE'S Treatise on the Radical Cure of Hernia by instruments. Philadelphia, 1836.

Reference will be also made occasionally to the mechanical reasonings and the detailed cases contained in the work just mentioned.

In the eighth section of the Preliminary Report, (Op. cit. p. 324,) the Committee ventured upon a physiological disquisition on the *modus operandi* of trusses, in producing *the apparently radical cure of Hernia*; and their conclusion on this subject was presented in the following sentence.

"These positions will explain the motive of the Committee in taking the ground, that the most perfectly retentive apparatus is that which offers the strongest probability of radical cure, and that any considerable irritation produced in the parts by the pressure of a block, may be considered, in the present state of the investigation, of secondary importance."—p. 326.

In the letter of the Chairman to Dr. HEBER CHASE, to which reference has been already made, the question of the *modus operandi* has been argued at greater length than would have been proper in a report designed to present a rigid detail of facts and established deductions; but the tenor of that letter, written after much more extended observation than had been offered when the report was read, adds collateral support to the present opinions of the Committee, founded upon the whole

of the evidence before them; namely, that the *radical cure of hernia*, by trusses, depends almost exclusively, if not entirely, upon the accuracy and permanency of the retention effected by the instrument. That, considerable or long continued irritation in the parts, so far from being an advantage, in reality opposes the successful treatment; that there are no facts in their possession which tend to prove indisputably that even slight irritations of the superficial tissues are transmitted to the tendons of the abdominal muscles in such a manner as to accelerate the cure; and that radical cures are sometimes effected without any other irritations than such as are altogether fugitive in character.

It will be remembered by the Society that the Committee, in the Preliminary Report, expressed the decided opinion that "the retentive power of solid blocks exceeds, *cæteris paribus*, by considerable difference, that of pads composed of softer materials."*

The whole current of the evidence since presented to them, most fully substantiates the correctness of this position, as the number of cases has been large in which the various instruments with soft pads have failed in

* "The Committee are decided in the opinion, that the retentive power of solid blocks exceeds, *cæteris paribus*, by considerable difference, that of pads composed of softer materials. If there could be any exception taken to this rule, it would be in favour of pads formed of very firm but highly elastic materials; but the only substance of the latter character now employed in the construction of truss-pads, is the gum-elastic; and against the direct application of caoutchouc to the skin, there are strong physiological objections."
—*Preliminary Report*.

effecting accurate and permanent retention, and in which the more perfect apparatus with blocks of proper form have been substituted with complete success.

It has been deemed unnecessary to preserve voluminous records of the multitude of cases presented, at different times, before the individuals comprising the Committee, which proved the superior retentive powers of the trusses with solid blocks, but which could not be subjected to frequent examination, on account of the fastidiousness of patients, or the distance of their residences; but sufficient evidence on this head will be found among the detailed observations appended to the former and the present reports. Nor is it esteemed desirable to burden the Society with a laboured analysis of the mechanical defects in the form, material, and mode of attachment presented by the several descriptions of trusses in use prior to the introduction of the contrivance of Mr. Stagner; defects in nearly every instance removed by more recent improvements. This subject has been ably discussed in the fourth chapter of Dr. CHASE's work. The problems involved in it are chiefly of a mechanical character, and all members of the profession who are at all familiar with the exact sciences are therefore equally competent judges of the correctness of the demonstrations. There has been no evidence presented to lead the Committee into any change of opinion as to the impropriety of substituting firm but elastic materials for the absolute solids in the construction of the armature of trusses. The employment of caoutchouc (of which truss-pads are sometimes constructed) as a direct and permanent application to

the skin, has been fully proved to be altogether inadmissible. The proofs of this fact were thrown before the society in a recent lecture, a notice of which will be found in the *American Journal of Medical Sciences*, Vol. XIX. p. 550; and the Committee will merely add that the irritating effects of this substance are so well known in the neighbourhood of the caoutchouc cloth manufactory, near this city, that it is extensively employed there as a popular remedy in cases of chronic rheumatism.*

These remarks have been premised, in order to explain the motives of the Committee in confining their report exclusively to the consideration of the action of trusses with solid blocks in place of pads. Their observation has been extended over a much wider field, but they deem it inexpedient to occupy the time of the Society with an account of the defects of various apparatus which have been so fully analyzed by others that the merits and demerits may now be considered as fairly before the public.

The trusses with solid blocks, now in use or recommended by inventors, may be divided into two classes.

* See also a paper in the *Southern Medical and Surgical Journal*, Vol. I. p. 663, "on the physiological effects of caoutchouc as an endermic application for the purpose of counter-irritation. Read before the Philadelphia Medical Society, Nov. 1836, by Heber Chase, M. D."

We agree with Dr. CHASE in condemning the India rubber or gum-elastic, as a substance entirely inapplicable for this purpose. We have seen a case where it produced not only a blister but an ulcer."—*Southern Med. and Surg. Journal*, Vol. I. No. 8, p. 471.

H. C.

1st. Those which are constructed for the express purpose of producing irritation, in order to effect a condensation of the skin, cellular tissue, and the fascia superficialis or the abdominal tendons about the hernial orifice, into one common mass by adhesion. 2nd. Those which are designed to secure the constant, perfect and safe retention of the bowel, without the attempt to create intentional irritation in the parts pressed by the instrument.

The first class includes the truss of Stagner, and the various apparatus of Dr. Hood for the treatment of common inguinal, ventro-inguinal, femoral and umbilical hernia.

Your Committee are not assured whether the several conoidal truss-blocks of lead, tin, or other metals, of which that attached to the strap and buckler known as Price's Truss (figures of which are seen in figs. 1, 2, 3, 4,) may be taken as the type, and the truss which bears the name of Sample's patent, as the least objectionable, were intended or not, by their inventors, to produce adhesions between the skin and parts beneath; but as they undoubtedly act in a manner better calculated to produce irritation than either of the other forms, they are most naturally arranged in this class.*

* "We presume that the intention of this pad is to produce irritation, and adhesive inflammation." *Journal of the Franklin Institute*, Vol. XV. No. 5. p. 336.

Lawrence's truss, of Kentucky, Thompson's and Wadsworth's of Vermont, and several others act in the same manner and are applied upon the same principle.—H. C.

THE LEADEN CONOIDIC BLOCK AND STRAP.

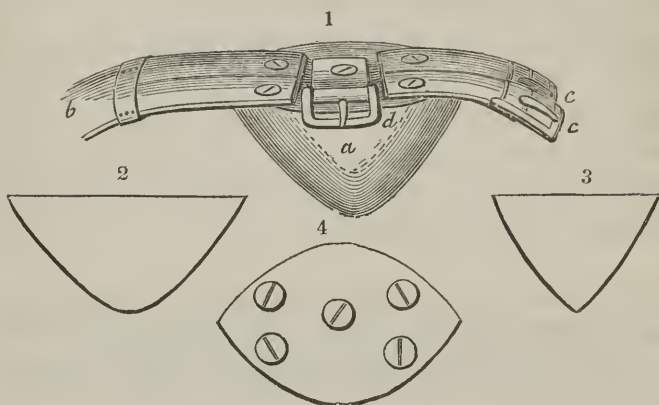


FIG. 1.—*a* A mass of lead of a conoidic form.

b The pelvic strap.

c c The buckles for securing the pelvic strap.

d The buckle for the perineal strap.

FIG. 2.—A longitudinal section of the lead, perpendicular to the base.

FIG. 3.—A transverse section perpendicular to the base.

FIG. 4.—A full view of the base and screws.—The strap and buckles detached.

The second class contains the old and well known instrument introduced to the notice of the Society by Dr. PERRINE, during the debate which followed the presentation of the Preliminary Report in 1835.

This instrument, known under the name of Eberle's, or the Ratchet Truss, was alluded to in the report, when ivory truss-blocks were mentioned; but the specimen presented to the society by Dr. PERRINE was armed by a wooden block; and although the Commit-

tee were not previously assured that wood had been employed in the construction of truss-blocks prior to its employment by Mr. Stagner, they have since ascertained that it has been in use for twenty years, and probably for a much longer period.

THE OLD WOODEN BLOCK OF EBERLE.

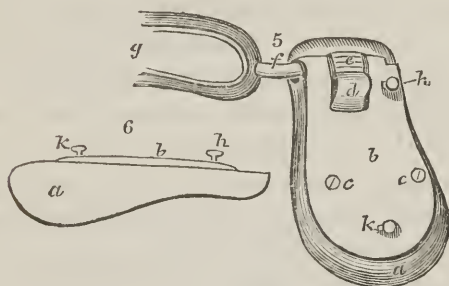


FIG. 5.—*a* The old fashioned wooden block of EBERLE'S truss.

b The iron block-rider or plate.

c c Screws attaching the block-plate to the wood.

d The ratchet.

e The ratchet-wheel.

f The iron neck of the wheel.

g The main-spring.

h The pelvic strap-button.

k The perineal strap-button.

FIG. 6.—Longitudinal section of the truss-block of EBERLE'S truss—
The letters having the same references as in fig. 5.

This class also embraces all the instruments invented by Dr. CHASE, which are five in number, and will be spoken of in detail hereafter.

The remarks of the Committee on the first of these

classes, naturally arrange themselves under two heads. 1st. Comments upon the supposed establishment of adhesive inflammation; and 2ndly. An estimate of the retentive power of the apparatus.

First then, on the establishment of adhesive inflammation by trusses of the first class. Your Committee have watched, with great caution and most minutely, the changes produced by the pressure of the truss-blocks in a number of cases; and the result of their observations may be summed up as follows: The application of the instrument soon produces an erythematous blush of the integuments, which, when the pressure is severe, often continues for weeks or months; but, when mild from the first, or rendered so at a later period by the substitution of an instrument with a weaker spring, the redness of the skin changes its character, and appears, on the removal of the instrument, like that simple result of capillary distension which is witnessed immediately on the removal of a tight bandage, wherever it may have been applied; a distension obviously produced by diminished action of the arcuated fibres and coats of the vessels, the tonic contraction of which has been rendered unnecessary for a time by the substitution of a mechanical support, the capillaries being thus incapacitated for resisting completely the *vis a tergo* of the arterial circulation and the hydrodynamic pressure of the venous column. This cause being more permanent during the use of the truss than during that of almost any ordinary bandage, the consequences are also more durable; and this second kind of redness, or purpleness, is some-

times observable for many days after the removal of the instrument.

The first of these forms of redness is the obvious effect of the superficial irritation produced by the pressure of the block, and may be called, with some propriety, the primary redness; the second is seen even after the parts have become accustomed to the presence of the instrument, and we shall take the liberty of calling it the secondary redness.

The form of hyperemia observed in the primary redness is known to be favourable to adhesion, if the irritation be not sufficiently intense to produce decided inflammation; and even when inflammation does supervene, if the constitution of the patient be good, the inflamed part will be surrounded by cellular adhesions, or depositions usually so called, designed to limit its progress, according to a well known physiological law.

The primary redness, during the use of the trusses of the first class, is often carried to such an excess as to produce decided inflammation, and sometimes even excoriation of the skin. (Case X.) It becomes, then, a question of considerable importance to decide whether the irritation of the block, or that produced by the inflammation which it sometimes causes, ever be transmitted to deeper seated parts so as to bring about adhesion between the cutis vera, the subcutaneous cellular tissue, and the fascia superficialis. The conclusion on this point will be stated presently.

The form of hyperemia as seen in the secondary redness, marks a condition of the vessels, which, instead of promoting adhesion, is well known to retard the formation of false membranes, while it promotes absorption to such a degree as frequently to determine the solution of such as are already formed, together with the interstitial deposits of tissues and sometimes even the tissues themselves.

If, then, these adhesions and condensations do occur, which are represented by the hypothesis as the cause of cure by these trusses, the evidence of their existence should be found during the continuance of the primary redness, and cannot be supposed to *commence* at a later period, when the parts have become familiarized to the pressure of the instrument.

Immediately after the application of a truss of the first class, the subcutaneous fat beneath the block begins to disappear by absorption, especially at the part corresponding with the shoulder or most prominent part of the block. After the disappearance of the adeps, the block still continues to sink deeper and deeper, until, in fleshy persons, it appears to be almost embedded; and, on removing the instrument, the integuments present a mould of the block, nearly or quite complete. This condition is observed before the subsidence of the primary redness in some cases, (Case XII.) and in others the parts may possibly become accustomed to the pressure before the depression of the integuments is so strongly marked; but in fact it has been observed in practice that active irritation of

the skin is generally reproduced from time to time, being complicated with the secondary debility of the vessels already described; or, in other words, *the skin rarely becomes perfectly accustomed to the pressure of blocks of this class.*

The tenor of the specifications of the patents of Dr. Hood and Mr. Stagner, (the only authorities on the subject known to the Committee,) induces us to believe that the authors of the hypothesis did not intend to carry the supposed condensation of the skin, cellular tissue, and fascia superficialis beyond the point at which the above detailed appearances are observed; but that measures were then designed to be taken in order to lessen or control the amount of irritation produced by the instrument, either by the substitution of a less severe block, or by placing next the skin some layers of silk or other tissue to prevent the direct action of the wood. Your Committee are therefore of opinion that it would not be quite consistent with impartial justice to include the *ulterior effects of the continued pressure of the blocks* in the investigation of the truth or falsity of the hypothesis. These ulterior effects will be mentioned hereafter; but the condition of the parts about the hernial orifice, or the abdominal canal, at the spot where the block presses, at the time when it is most deeply embedded, and during or after the highest irritation, is as follows:

The cutis vera, presenting one or the other form of redness above described, is sometimes thickened a little around the edges of the block, where a general puffi-

ness of the integuments is occasionally observed. In some instances this thickening of the true skin is perceptible for a short distance beneath the more inclined, or inner and upper edge of Hood's inguinal block; but with all the instruments of this class which have been seen in use, the parts where the pressure is considerable, or, in other words, those which are nearest the hernial orifice *when the instrument is rightly applied*, are marked by no thickening of the skin; and, in some instances, that membrane is rendered obviously thinner than when in its normal condition, *even when the case has not advanced beyond the primary stage of irritation*.

The subcutaneous cellular tissue is found in every instance reduced in thickness by the obvious removal of the adeps, and by some process producing still greater compression. The Committee have seen no evidence whatever of the slightest thickening, either in the fascia superficialis, the abdominal tendons, or the edges of the external abdominal ring when that part has been acted on: and in all the cases the skin, where most closely approximated to the fascia, can be made to glide freely over it, when moved by the finger.

After the final removal of the truss, the parts thus flattened or impressed by the block rapidly regain the general level of the abdomen. The cellular tissue receives anew its characteristic deposits, both within and beneath the cutis vera, and the adeps reappears. A few weeks are sufficient to effect this change; it is sometimes completed before the entire subsidence of the secondary redness, and it has been known to com-

mence even under the pressure of the blocks of Dr. CHASE's trusses.

Your Committee feel compelled to regard these facts as conclusive against the truth of the doctrine, that the trusses or blocks of the first class produce a real condensation of, or adhesion between the skin, the subcutaneous cellular tissue, and the fascia superficialis or abdominal tendons.

If the depression were the result of a true condensation, it would be utterly impossible that the skin should retain, as it invariably does, its mobility upon the parts beneath. If adhesions actually took place, and the hypothesis which considers the cellular tissue as a membrane containing cells be true, the obliteration of those cells would render impossible the rapid reproduction of fat and the disappearance of the depression which has been described. If, on the contrary, that hypothesis be correct which represents the cellular tissue as a homogeneous mass, then the existence of adhesions between the cutis and the parts beneath could not permit the skin to rise again to its natural level until the accidental membranous connexions were gradually elongated by mechanical or other forces; but the parts interested in the present case are not subject to any mechanical distending forces, in proof of which the Committee will refer to the letter of the Chairman already quoted; nor can it be supposed that interstitial deposition alone could occasion the necessary stretching of the adhesions within the time required; for this process is always slow and tedious,

even under the action of very powerful forces, as is seen in the adhesions following inflammations of serous cavities. If any should believe it possible that the renewed interstitial deposits might elevate the skin to the natural level, the Committee would merely suggest that these depositions could occur only in the intervals of the factitious membranes formed by the adhesions, and hence, that the skin thus elevated, would be inevitably rugose—a character totally inconsistent with the facts of the case. Moreover, we often witness similar depressions of the integuments among the effects of long continued pressure by bandages and splints in surgical cases—as, for instance, over the tibia in ulcers of the inferior extremities—yet, in no case do we see the skin adherent to the parts beneath, unless in places where there has been an actual loss of substance or the establishment of the suppurative process.

Your Committee, therefore, entertain decidedly the opinion that the hypothesis of condensation and adhesion is untenable.

It may now be asked, if adhesion and condensation are not produced by the first class of trusses, what are their actual effects? It is plain that the inflammation produced by the blocks, is greatest around the margin, where the blood-vessels are left free to perform their functions; and, that nature, in that situation, attempts to arrest the progress of the inflammation, or to circumscribe it in the usual way. But the condensation produced by this attempt appears to be confined, like

the inflammation itself, entirely to the skin, and if the consequent irritation be extended to the subcutaneous cellular tissue in any instance, its effects are there confined to a slight increase of the secretions, apparently œdematous, and certainly fluid and temporary. These changes are confined to parts distant from the hernial orifice, and cannot have any influence, direct or indirect, in opposing the exit of the bowel.

Beneath the block, where the pressure has a direct relation to the orifice, the changes are all the result of simple absorption.

If the form of the blocks were well adapted to the anatomical form of the parts, this absorption, if not carried beyond a certain extent, would render the retention of the bowel more secure, by bringing the instrument into closer relation with the actual seat of the accident. The question how far the blocks of trusses of the first class are calculated to secure retention, will be discussed presently; but it is proper, in the first place, to notice the ulterior effects of the instruments when the pressure is continued after the degree of absorption already described has been effected.

In this class of instruments the pressure acts chiefly on the parts immediately beneath the most prominent points and the sub-angular shoulders of the blocks. In these situations the wood is soon brought to bear with great force, and over a narrow or small space, upon the abdominal tendons and fascia.

Your Committee, in their Preliminary Report, expressed their fears that in certain cases, the continuance of this pressure might endanger the integrity of the tendons themselves. They do not feel warranted in quoting hearsay evidence on the justice of this fear, but the Society will observe that in one instance under their observation this result has actually taken place. (See Case XII.) The patient is still under treatment; a long space running perpendicularly upward from a much dilated external ring, following the direction of the shoulder of the inguinal block of Hood and Stagner, as it was applied in that case, is greatly weakened by absorption. The abdominal tendons are there obviously thin toward the part pressed by the heel of the block, and are very obscurely felt toward the middle of the space. The upper outline of the external ring cannot be felt, and its external side seems shaded off gradually, and becomes indistinct at its margin. The bowel is perfectly retained by one of Dr. CHASE's large ventro-inguinal trusses, but the ability of the tendons to recover their original structure can only be determined by time.

The doctrine of adhesion and condensation being overthrown, there can remain but one mode of explaining the action of the instruments and their alleged claims as means of radical cure in hernia, viz: Their mechanical influence in producing perfect retention of the bowel; for, whatever changes may occur in the hernial orifice while the instruments are applied, even granting that these changes ultimately render their further application unnecessary, can only be due to the

exercise of the natural functions of the part affected, and have no farther dependence on the instruments than such as results from their mechanical action in permanently removing the substances which were previously present from time to time in the false passages which constitute the disease.

We will now, therefore, proceed to examine the retentive power of the trusses of the first class, so far as the subject remained unfinished in the Preliminary Report.

The trusses with conoidal blocks may be safely dismissed with a very few words. If their points be placed accurately over the hernial orifice, whether the intestine makes its exit by the internal or external ring, or at any other point on the surface of the abdomen, these blocks must act as distending forces; and, when the absorption consequent upon their pressure has reached its maximum, they substitute the constant presence of an unyielding solid body lined by the integuments for the occasional presence of a soft and pliable viscus in the false passage—a state of things in which the remedy is literally “worse than the disease!”

Eberle's or the Ratchet Truss, with a wooden or ivory block, is an instrument which has never attracted very general attention from the profession. The peculiar mode by which the block is attached to the spring is liable to very grave objections; but as these have been very fully discussed in the work of Dr.

CHASE, the Committee deem it unnecessary to dilate upon them here.* The block itself is tolerably well calculated for some forms of ventro-inguinal or direct hernia, but falls, in this respect, far behind some of the more recent improvements. For common inguinal hernia its mechanical construction is badly calculated, as it is very difficult to cause its longitudinal diameter to agree at all with that of the abdominal canal; and the enlargement of its lower extremity occasions its pressure to be chiefly exerted on the external ring, where it is least required. It is highly probable that the internal ring was seldom protected at all, in the majority of the cases in which it was employed, and could never have been *very securely guarded* in any instance. Yet, notwithstanding these disadvantages, it is said to have affected some radical cures of hernia, as indeed most trusses do occasionally. Your Committee have never seen it in actual use, but though it is obviously less dangerous to the integrity of the tendons than either of the other trusses of the first class, they cannot recommend any further trials of its value, as more recent contrivances are obviously safer, and more certain in their action.

Neither this truss, nor those with conoidal blocks, are applicable to femoral hernia; nor could the former be employed in umbilical hernia.

* Chase on Hernia, p. 48.

STAGNER'S BLOCK, WITH ITS ATTACHMENT,

AS TAKEN FROM A DRAWING MADE IN THE PATENT OFFICE AT WASHINGTON.

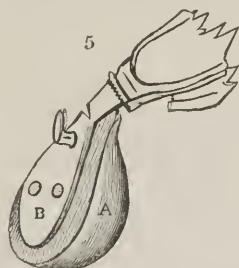


FIG. 5.—A The Block, B The Block-rider.

In taking up the consideration of the apparatus of Stagner and Hood, it should be premised, first, that Mr. Stagner's specification contains no claim to originality, except in regard to the form of the block, and perhaps the hook, which replaces the button commonly used for fastening the strap of the truss; the instrument being precisely similar in all other respects to the common old inguinal truss: and, secondly, that Dr. Hood's specification contains no claim to *any truss with a spring*, so far as your Committee are capable of comprehending the language of the document, which is not entirely divested of apparent ambiguity. His claims cover certain blocks invented by him, but he does not appear to claim the inguinal block, which the Committee, in their Preliminary Report, regarded as essentially the same with that of Stagner.* He claims also

* Your Committee have examined this block with great attention; they can discover no peculiarity in its structure, other than the simple fact that it is rendered smooth. It is the block of Stagner.—*Prel. Rep.*

a variety of compound and complex drawers, belts, &c. by means of which the blocks were to be applied without the aid of any main truss spring.* But it was thought unnecessary at the time of the Preliminary Report, to go into the investigation of the action of these contrivances; and, as they have been exhibited to the Society on a former occasion, the Committee will confine their remarks, at present, to the simple notification of their belief that these belts and drawers, viewed as means of retention in hernia, are vastly inferior to the simplest springs of the old trusses, whatever may be the form of the pads or blocks employed. This opinion is given on broad mechanical principles, for the Committee have not deemed it necessary to subject it to any practical test.

The adaptation of the blocks of Dr. Hood to the springs of common trusses, is mentioned incidentally in his specification. It is directed that when the circumstances of the case permit, this adaptation should be made; and, as the Committee believe that all cases which admit of the application of the blocks, admit also

* In the specification of Dr. Hood, much is said of certain apparatus of a very complex character, in the form of numerous belts, drawers, spring-belts, compresses, springs, &c., with explanations of their *modus operandi*, and claims to originality with regard to special portions of these contrivances.

Specimens of these apparatus lie upon the table, but your Committee do not feel warranted in detaining the Society, by offering any remarks upon them here, because after waving all the numerous mechanical and physiological objections to their use, their complexity alone still rests as a most formidable barrier against their claims.—*Prel. Rep.*

of the application of the spring, their analysis will be confined to the action of the blocks as connected with springs, similar to those of ordinary trusses.

The umbilical blocks of Hood do not appear to differ essentially from those previously and occasionally employed by surgical practitioners, unless it be in the mode of attachment by means of a spiral spring; and the Committee have nothing to add to the remarks on these instruments made in the Preliminary Report. (Op. cit. p. 312.)* They have little additional remark to offer upon the femoral block of the same inventor, except to point out the fact, that as the prominent line of the block must necessarily cross the cord of Poupart's ligament before its elevated point can reach even the spot at which the bowel, in this form of hernia, protrudes in front of the level of the fascia lata, it is impossible that the instrument can be brought into close relation with the hernial orifice beneath Gimbernat's ligament, except by the rupture or absorption of the ligament, or by a degree of compression intolerable to the patient; and that if the necessary relation could

* "For umbilical hernia, Dr. Hood has also patented two forms of blocks. These are designed for application, by means of a peculiar belt, also claimed as original; in the centre of which is a metallic plate, connected by means of a spiral spring with another similar plate, upon which the block is secured. The spring is not claimed by the patentee, and in the blocks your Committee discover nothing unusual."—*Prel. Rep.*

The belt here claimed by Dr. Hood is the common Russian abdominal band, usually seen on sale in all the clothing stores.

H. C.

be established, the long plane presented by the block, so slightly inclined as it is to the rout of the intestine, could not exert any perfect retentive power without the aid of intolerable compressive force. It is but just to state that the instrument under notice shares this objection in some degree with all its predecessors in the treatment of femoral hernia; for they all press upon Poupart's ligament. None of them address themselves directly to the femoral ring. The objection, indeed, weighs more heavily against the block of Dr. Hood than against the soft pads of the old trusses; for the latter, by yielding to the pressure of the ligament, and expanding below it, do offer *some* valuable portion of upward pressure by acting on the soft parts beneath its margin; whereas the solid block, being altogether unyielding, exerts scarce a particle of such influence. Your Committee deem no further reasoning necessary to account for their disapproval of this instrument.*

* "The Society is presented also with the pad invented by Dr. Hood, for the treatment of femoral hernia, both with and without the spring of the truss. (See fig. 5, *Prel. Rep.*)

"We forbear to detain the Society with a complete analysis of its intended mechanical operation, referring the curious to the certified specification of Dr. Hood's patent, obtained from the Patent Office at Washington, which lies upon the table. Its chief design, however, was to produce a closure of the femoral ring, an effect which, in the opinion of your Committee, cannot result from such an instrument, owing to the peculiar relation existing between the edges of Poupart's and Gimbernat's ligaments. Your Committee feel compelled to disapprove of this pad, as uncertain in retentive power, and necessarily extremely annoying to the patient.

"This ground is taken on plain mechanical principles, and does not appear to require the test of experiment. But if evidence of

The inguinal block claimed by Stagner, and adopted, and perhaps somewhat modified, by Dr. Hood, has been made the subject of comment in the Preliminary Report—where its advantages, and the valid objections against it, have been stated. Many cases who had employed this instrument have presented themselves to the Committee, and in a few only of these has the retention of the bowel been constant. They can recall but one instance in which the evidence of the friends, or that of the patient, tended to show that the bowel had never descended during the employment of the truss, after it had been sufficiently adjusted. (Case III.)

That occasional radical cures have been effected by the use of trusses armed with these blocks, is probable, for such results have sometimes followed the use of almost every truss; but, waving the pain and inconvenience produced by the block, which are often very considerable, the Committee have seen sufficient evidence that it furnishes but insecure means of retention, in any form of hernia, and that in the common inguinal form, for which it is expressly recommended, it cannot be made to press sufficiently on the internal ring, while the lower point of the shoulder acts upon the external ring. From the details of Case XII., to which reference has been already made, the Society will judge how far the linear pressure of the elevated ridge of the block, and the small dimensions of the most prominent

this character be demanded, it can be given by one of the most ingenious members of the Society, who has actually and faithfully employed it.”—*Prel. Rep.*

part, may endanger the integrity of the tendons and effect the enlargement of the external ring. The objections to the form of this block, appear to outweigh any advantages resulting from its solidity.*

* "In examining carefully the mechanical principles involved in the common inguinal blocks of Stagner and Hood, these instruments appear to possess one important advantage over the more common forms of the soft pads of the trusses in general use, and they are likewise liable to two equally important objections. The advantage is found in the gradual arch of the abdominal face of the block, which causes it to adapt itself more regularly than the ellipsoidal pads to the peculiar form of that part of the abdominal parietes in which the inguinal canal is placed, and in the abruptness of the pelvic face, which enables the instrument to approach more nearly to the pubis, without overlapping that bone, and occasioning serious inconvenience to the patient, while, at the same time, efficient pressure is effected at the lower end of the block.

"The great objections are these:—1st. The tendency to an elongated semi-fusiform shape, renders the block so extremely prominent at the lower extremity of its shoulder or most prominent line, that the remainder of that line produces no very efficient pressure upon the rout of the inguinal canal, the principal effect of the instrument being confined to the neighbourhood of the external ring, and the more important point—the internal ring—being left insecurely supported. 2nd. The great elevation of the lower end of most of the blocks, seen by your Committee, is calculated, in part, to counteract the advantage of the gentle curvature of the abdominal face, by causing the shoulder of the block to act in a linear manner, the strong compression being confined to a very narrow space, as has been proved by cases under the observation of the Committee. This error increases the uncertainty of retention, and it is unnecessary to the production of irritations amply sufficient to fulfil the hypothetical indications pointed out by the inventors—a fact of which your Committee have had, in their opinion, sufficient practical evidence. Moreover, the same peculiarity of form causes the lower or internal extremity of the shoulder to act upon the external ring, somewhat in the manner of a very small pad, and hence, in

The ventro-inguiual block of Hood, was condemned with less hesitation in the Preliminary Report—but it is now proper to add the reasons for this condemnation. The block was intended, according to the specification of the inventor, to draw together the parts about the ring of a ventro-inguiual hernia, and to produce adhesion between those parts and the edges of the ring all around the orifice. It is unnecessary to repeat the reasoning which appears to us to prove the fallacy of this theory of adhesion, but the impossibility of effecting the adhesion is the lightest objection to the instrument. A stronger one is found in the fact that the concavity of the block necessarily permits the bowels to protrude for a certain distance, so as to occupy the hernial orifice and prevent its contraction, should nature attempt to close it by that process.

The only block of the first class now remaining unnoticed, is the ventro-inguiual block, with a parabolic projection, termed by Dr. Hood “the scrotal block,” which was approved, with justice, in Preliminary Report, (Op. cit. 323,) as it secured a more effective retention of certain cases of ventro-inguiual hernia than the armature of any truss then known; but the Committee considered “a more perfect instrument to fulfil the same purposes, both possible and desirable.”

ventro-inguiual hernia, there would be strong danger of a consequent dilatation of the ring, and an exacerbation of the disease.—*Prel. Rep.*

FIG. 6.—HOOD'S VENTRO-INGUINAL BLOCK.

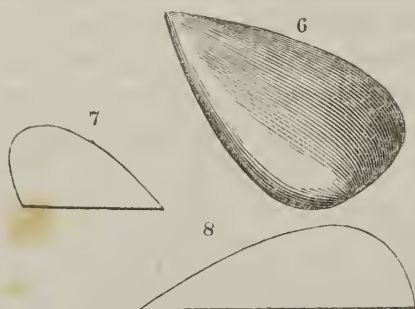


FIG. 7.—Transverse section.

FIG. 8.—Longitudinal section.

The defects perceptible in this truss-block, appear to have been, in great degree, the result of the peculiar opinions of the inventor as to the *modus operandi* of his apparatus—the principal error consisting in the undue elevation of the inferior margin of the block, which was evidently designed to produce the degree of irritation held necessary to effect a cure. Another highly important defect was the strong curvature of the lower margin, which appears as though it were modelled upon the supposition that the external orifice of the abdomen is, as its name implies, a *ring*—and not, as nature made it, nearly a *triangle*, with the two columns of the external oblique forming its lateral boundaries and the upper edge of the os pubis its base. The transverse fibres which truncate the superior acute angle of this triangle, do indeed present an arch upward in the normal condition of the parts, and the os pubis is somewhat curved downward between the

columns, so that the orifice bears some resemblance to a ring when felt by the finger after reverting the skin of the scrotum; but in ventro-inguinal hernia, these transverse fibres are generally broken or absorbed, and the pubic base being much elongated by the separation of the columns, presents but a very slight degree of curvature. The block under review is but ill adapted to the form of this part of the pubis, and hence it does not effect retention with sufficient certainty and constancy to give entire satisfaction.

The observations of the Committee upon these defects have given rise to the contrivance of a most beautiful instrument, the merits of which will be noticed in the sequel.

The specification of Dr. Hood's patent also contains some claims to a certain mode of succession in the application of *different blocks in the same case, at different stages of the treatment*, and also, to the interposition of some layers of silk between the blocks and the integuments, and the removal of these layers from time to time, *seriatim*;^{*}—as these measures relate only to the regulation of the degree of irritation produced by the apparatus, and as we have been compelled to op-

^{*} William Hall Timbrel, Esquire, of London, has published a work entitled "Practical Observations on the management of Ruptures," which was republished in Boston in 1809. Mr. Timbrel here describes what he calls his new method of employing cushions of calico, or folds, placed under the pads of trusses, layers of which were to be removed from time to time, as the cases might require.

pose the doctrine which regards this irritation as desirable, we do not think it right to occupy the time of the Society with any comments upon the subject of these claims.

From the result of all the evidence presented to them, and their reasonings upon it, the Committee are irresistibly drawn to the following conclusions. 1st. That the trusses of the first class do not secure the complete and permanent retention of the bowel with all the certainty which may be obtained by mechanical means. 2nd. That although it is extremely probable that radical cures may be occasionally effected by the use of such instruments, it has not been proved that the success following their employment exceeds that which has been obtained by the better kinds of trusses previously in use. 3d. That the action of these instruments is often attended with serious and unnecessary inconvenience, uneasiness and pain. Lastly, That their employment for too long a time, when the degree of pressure exerted by them is considerable, sometimes produces absorption of the tendons, dilatation of the hernial orifice, and an extension of the evils they are designed to remove; and that any attempt to obviate this danger, by lessening the pressure while the support of the instruments continues to be required, will diminish the security of the retention. For all which reasons the Committee do not feel warranted in making a favourable report on the claims of this class of trusses upon the confidence of the Society.

In entering upon the analysis of the merits of the

second class of trusses, the labour becomes more complex in character, and requires that the subject should be divided under more numerous captions.

As the course of the previous argument required that Eberle's or the Rachet Truss should be noticed in the former part of this Report, rather than in its natural order among its fellows of the second class, there remain for examination only the six instruments of Dr. CHASE.

The object of these instruments is to secure the perfect and permanent retention of the viscera in hernia, in order to permit the powers of nature to effect a radical cure after the removal of the misplaced parts which are supposed to offer the greatest obstacle to her success. It is proper, therefore, to investigate, in the first instance, how far they fulfil the all important purpose of retention; leaving their effects upon the tissues, the *modus operandi* of nature, in effecting the cure, and the extent of the results to be discussed in the sequel under distinct heads.*

* In the month of July last, 1834, Mr. Heber Chase expressed to the Chairman of the Committee a desire that the merits of certain improvements upon the blocks already noticed, claimed by him as original, should undergo a full investigation before the Committee, both as regards their mechanical principles and their practical effects. Throwing himself upon the profession, and before the world, the Committee feel bound to bear honourable testimony to the disinterested frankness with which this gentleman has facilitated their investigations, even when these have conflicted with his interests. Claiming no exclusive privileges, and concealing no failures, he has presented to the Committee all the evidence which

ANATOMICAL VIEW OF THE ANATOMY OF HERNIA.

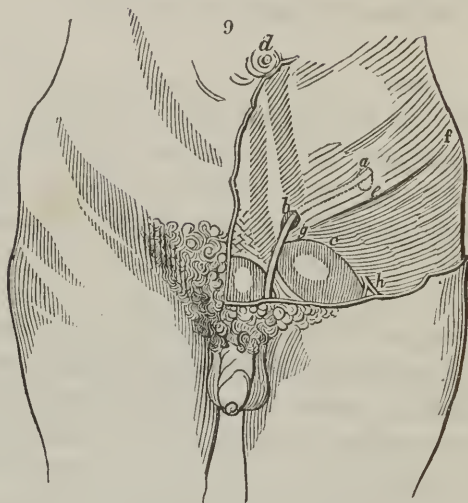


FIG. 9.—The skin and superficial fascia removed from the left side of the abdomen, and the left groin, so as to display the surface of the tendons, the position of the abdominal rings, and canal, &c.

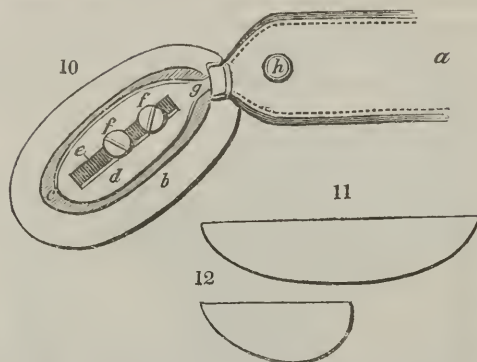
a The internal abdominal ring, marked in dots, as seen through the tendon of the external oblique muscle.

their rather tardy action on his suggestions have enabled him to produce; and they have now the satisfaction to announce, that, commencing their researches with doubt, and with rather unfavourable preconceptions, their opinion has been rendered highly favourable to the claims of several of his improvements, by the weight of the few observations which they have been enabled to make. Your Committee will not permit, however, any feeling of personal gratification to interfere with the rigorous analysis and honest report of surgical facts. The members are not disposed to suffer the influence of *men* to interfere with their calm judgment of *medical opinions*.—*Prel. Rep.*

- b* The external ring, formed by a natural separation of the fibres of the same tendon; the spermatic cord seen passing through it to the scrotum, and the dotted line between the two rings marking its course upwards, under the tendon, through the abdominal canal.
- c* The spot where the tumour in femoral hernia is generally seen when it rises from beneath the fascia lata of the thigh, the femoral canal not being visible in this view, because it is hidden by Poupart's ligament.
- d* The umbilicus.
- e* The middle of Poupart's ligament.
- f* The anterior superior spinous process of the os ilium.
- g* The body of the os pubis, forming the lower boundary of the external ring.
- h* The saphena vein passing through the fascia to join the great femoral vein.

The inventions and improvements of Dr. CHASE, many of which have been adopted since the presentation of the Preliminary Report, extend to all parts of the truss and its appendages, and his attention to minute but highly important details has been carried to an extent never equalled by any of his predecessors in this branch of surgery. The complete instruments employed by him are—1st. The Inguinal or Common Inguinal Truss. 2nd. The Vento-Inguinal Truss. 3d. The Femoral Truss. 4th. The Umbilical Truss. 5th. The Umbilical Belt. 6th. The Double Truss. Each of these demands separate notice, and in most of them the following parts require distinct examination. (*a*) The Block; (*b*) the Block attachment; (*c*) the Spring and Strap-attachment; (*d*) the Appendages.

CHASE'S COMMON INGUINAL BLOCK, WITH ATTACHMENT.

FIG. 10.—*a* The extremity of the main-spring of the truss.*b* The block.*c* The brass block-rider: the screws by which it is attached being covered by the block-slide.*d* The block-slide.*e* The window in the block-slide.*f f* The two broad-headed screws of the block-adjustment, securing the rider to the slide, and, when loosened, sliding freely in the window.*g* The soft iron flexible neck, attaching the block-slide to the main-spring.*h* The button for the pelvic strap, which is generally used for the perineal strap also.

The proper perineal strap-button on the end of the block-side is omitted in this and some succeeding figures, to prevent confusion.

FIG. 11.—Longitudinal section of the block.

FIG. 12.—Transverse section of the same.

(a) *Of the Block.**—The block of this truss was

* "In regard to the retentive power of particular blocks, the Committee are prepared to express their warm approval of the inguinal block of Mr. Chase, in which, at present, it can suggest no improvement."—*Prel. Rep.*

warmly approved in the Preliminary Report, (Op. cit. p. 323.) and it has amply maintained its character throughout the more recent investigations: it is so perfectly adapted to the form of the parts interested in common inguinal hernia, that the Committee are unable to perceive in what manner it could be improved; nor has it ever failed, under their observation, in retaining the bowel both permanently and completely during the time of its employment, after the first few days required for the accurate adjustment of the instrument. Nothing farther appears necessary to prove the decided superiority of this block over all others known to the profession, in the particular form of hernia for which it is designed.

(b) *Of the Block-attachment.*—Two very important improvements upon the old modes of attaching the pad to the spring of the truss are observable in the block-attachment of the Inguinal Truss. The block is surmounted by a thin oval plate of brass, termed by the inventor a *block-rider*; and this is adapted to the under surface of an iron plate of nearly similar form, called the block-slide, to which it is attached by means of two round-headed screws, playing freely, when loosened a little, in a longitudinal fenestrum in the block-slide, so as to admit of any required change of the position of the block in this direction, to the extent of about an inch in the trusses designed for adults. The block-slide is connected to the spring by means of a round neck of soft iron, about three-quarters of an inch in length, sufficiently stiff to resist any change of shape during the most active movements of the patient,

and sufficiently pliable to act like a universal joint under the hands of the surgeon. The combined action of the slide and the neck enables us to adjust the block with the utmost precision to the edge of Poupart's ligament, the rout of the abdominal canal, and the internal ring, whatever may be the peculiar form of the abdomen of the patient, while the block remains invariably in the exact position chosen by the surgeon; advantages possessed by none of the trusses previously in use, so far as they are known to the Committee. These improvements are, in themselves, sufficient to add very greatly to the value of the instrument.

(c) *Of the Spring and Strap-attachment.*—The endless varieties of form which have been given to the springs of trusses, render it apparently impossible that any thing intrinsically novel, in this part of the hernial apparatus, should be presented to the public hereafter; but it is of the utmost importance that the profession should determine what class of springs are calculated to give the greatest degree of security and permanency to the action of trusses.

This subject has been amply discussed in the work of Dr. CHASE already repeatedly cited; and the Committee are prepared, after due reflection, to coincide in the opinion expressed by that gentleman, that the semicircular steel springs of Salmon and Ody* are objectionable, because they are brought into accurate

* For a drawing and description of "Salmon and Ody's patent ball-and-socket attachment," see CHASE on Hernia, Fig. 5, p. 46.

relation with the body only at the spots corresponding with the spine and the hernial orifice; the whole arch of the spring resting loosely over the side of the pelvis without a fixed location, and remaining liable to continual change of place from the movements of the glutei muscles and the reaction of the dress of the patient. The changes just mentioned must inevitably lead to the danger of corresponding changes in the position of the pads or blocks, and consequent insecurity of retention. The motives for the invention of this class of springs were the three following, and they are obviously fallacious. 1st. It was supposed that the pressure of the spiral elastic springs, being exerted throughout their whole length, renders them liable to derangement by the motions of the parts on which they press; but, excepting on the front of the hypogastric region of the abdomen, those parts have so slight a degree of mobility—based as they are upon the solid structure of the pelvis, and almost uninfluenced by muscular contractions—that their alterations of figure are of no real importance. The changes in the figure of the hypogastric region are fully compensated by the elasticity of the spiral springs, and those of the parts over the ring of the ilium are successfully counteracted by perineal straps, so that the accuracy and permanence of retention are not contravened when spiral springs are employed. 2nd. It was supposed that the changes of shape in the hypogastric region required some mode of adjustment more complete than that effected by the elasticity of the main spring, to enable the pad or block to accommodate itself at all times to the form of the parts; and hence the ball-and-socket

pad attachment, to which the semicircular spring was deemed peculiarly adapted. But, if desirable, this mode of attachment may be as readily employed in connexion with the spiral spring. Your Committee do not deem it desirable; because the ball-and-socket attachment renders secure but one point on the back of the pad or block, while the circumference may be tilted in any direction by the pressure of an intestine from within, almost as readily as by the movements of the abdomen, to which the pad is designed to yield; for the soft and compressible surface of the hypogastric region cannot securely prevent this tilting when the adjustment of the pad is not remarkably accurate, or when the propulsive force of the intestine in hernia is considerable. A third argument urged in favour of the introduction of semicircular springs was drawn from the tendency of the strap attached to the spiral spring trusses to draw upwards, and thus displace the pad; but this difficulty is completely removable by giving to the spiral spring and the accessory parts of the truss a proper form and disposition, as will be explained hereafter.

Your Committee are therefore of opinion that Dr. CHASE has done wisely in adopting the spiral spring, and retaining the strap so as to encircle the whole pelvis by the truss, in preference to the semicircular spring and universal joint of Salmon and Ody's instrument, and the modifications of the same by the late Dr. Hull, of New York, the Rev. Mr. Reed, of Georgia, &c. &c.*

* Many other modifications of the truss of Salmon and Ody

Although there is nothing positively novel in this part of the Inguinal Truss of CHASE,† the inventor has

were presented before the Committee, but are not specified in the Report, probably on account of their number, and the sameness of principle in their action. Among these may be enumerated the trusses of Farr, Marsh of New York, Glover of New York, Sherman of Baltimore, &c. H. C.

† On the 25th day of August, 1837, I addressed to Dr. REYNELL COATES, the late Chairman of the Committee, the following note:

MY DEAR SIR,

Will you allow me to ask your opinion of the improved truss-spring with a dorsal slide, which I had the pleasure to submit to your examination a few weeks ago? I wish to publish this opinion in connexion with the Report of the Committee on Hernia, of which you were Chairman. Should your urgent engagements as a member of the Scientific Corps of the United States' Exploring Expedition permit you to give one moment's attention to the subject before your departure, I shall consider myself under deep obligations to you for a candid expression of the value you attach to the improvement.

With great respect,

Your obedient servant,

HEBER CHASE.

REYNELL COATES, M. D.,

COMPARATIVE ANATOMIST TO THE U. S. SURVEYING
AND EXPLORING EXPEDITION.

Philadelphia, August 25th, 1837.

To this note the following answer was returned:

MY DEAR SIR,

Your note of the 25th inst. is in hand. It is altogether impossible for me to enter into any experimental examination of the value of your "improvement," at present; but the few moments which I have been able to give to the consideration of the purely

established definite rules for the degree of temper and the extent of the various curvatures of the spring, and also for the position of the strap-button, which render it easy to adjust the instrument more securely and permanently in all cases than can be done when these points are left to the discretion of instrument-makers. Experience has decided that there is an advantage in giving an elastic temper to all that portion of the spring which intervenes between the pad-attachment in front and the opposite sacro-iliac symphysis in the rear, but that the portion extending from the latter point to the opposite side of the pelvis should be so far softened as to admit of adjustment by being permanently bent. Three inches of the hinder extremity are left ductile in all the trusses of the full size; and thus the necessity of making an instrument expressly for each individual case (the great difficulty in the employment of spiral springs

mechanical properties of the truss-spring with a dorsal slide, have induced a belief that some increased steadiness, accuracy of action and adaptation may probably result from its introduction as a part of your hernial apparatus. At the same time, I feel reluctant lightly to admit the propriety of modifying a series of instruments already so perfect in their action; and if the proposed change, or any other, be introduced, it should be after more mature reflection, and more extended practical testing than my present and future duties will allow me to make or to witness. Under these circumstances it gives me great pleasure to believe that no man in the profession is so well qualified as yourself to observe and decide upon its merits after it has stood the test of experience.

I have the honour to be,

With great respect,

Your obedient servant,

REYNELL COATES.

To HEBER CHASE, M. D.

entirely of tempered steel) is completely obviated, without sacrificing the accuracy of the adjustment on the one hand, or its permanency on the other.

It has been customary to curve downward the anterior end of the spiral spring, so that when the part which lies across the back is horizontal, the front extremity may approach more nearly toward the abdominal canal. In CHASE'S Inguinal Truss this curvature does not exceed three-fourths of an inch, and its commencement is found far back upon the costa ilii when the instrument is applied; so that the spring, in passing forward from that point, winds downward below the anterior superior spinous process without encroaching too much upon the bellies of the glutei muscles or disturbing the proper position of the spring and strap on the back part of the pelvis. Any further increase of this curvature is attended with inconvenience, by giving the direction of the strap too much obliquity, and disposing the instrument to tilt upward in front; and such increase is rendered altogether unnecessary by the soft iron neck of the pad-attachment. In the last three inches of the anterior end of the spring there is another curvature, resulting from a slight torsion of the axis of the generating curve of the spring, which brings the flat side of this part of the spring into more complete correspondence with the surface of the hypogastric region—a matter of much importance to the comfort of the patient, and one giving additional security to the position of the instrument.

It has been customary, almost invariably, with truss-

makers to place the strap-button upon the plate or expansion which supports the pad, but Dr. CHASE has very wisely affixed it to the anterior end of the spring; by which means the obliquity of the strap is much diminished, and the pelvis is enclosed by the instrument in a direction approaching very nearly to the circle, the strap lying altogether above the level of the block-slide, and the disposition of the instrument to tilt or ride upwards being reduced almost to nothing.

The Committee consider the establishment of a fixed model for the triple curvature of the spiral spring, and the position of the strap-button, as a highly important recommendation to the instrument under notice.

(*d*) *Of the Appendages.*—The perineal strap is never wanting in the Inguinal Truss of Dr. CHASE. It is attached behind by means of a sliding loop, through which pass the spring and cover. Before, it is commonly secured to the strap-button, but each instrument is also provided with another button made expressly for the perineal strap. This is seated on the lower extremity of the block-slide, and may be used to give additional security and force to the action of the block when the lower part of the abdomen is very prominent and loaded with fat. The back-pad is a very important appendage to the truss, giving great certainty to the position of the instrument, by protecting from irritation the spinous processes of the sacrum, and filling the interval between the spring and the integuments along the median line on the back of the pelvis. Some very important improvements have been made in the

construction and mode of attachment of this pad. It is formed of a simple circular disk of tin, about four inches in diameter, covered with soft buckskin, and lightly wadded. A broad sliding loop of leather suspends it on the spring and cover, so that its position may be adapted exactly to the size of the patient and other accidental circumstances. This perfectly free mobility of the back-pad is believed to be a novel arrangement and one of high practical importance; for it is found that the parts about the back of the pelvis are so intolerant of even slight pressure, when very long continued, that the subcutaneous fat becomes absorbed and the skin irritated by the mildest back-pad, if it be worn in one invariable position for many months consecutively. This difficulty is entirely obviated by an occasional change of position produced by sliding the pad a little toward one or the other side;—a change that is not attended with any loss in the security of retention, and which is accomplished more readily by the arrangement just described than by any other known to the Committee.

CHASE'S COMMON INGUINAL TRUSS FOR THE RIGHT SIDE.

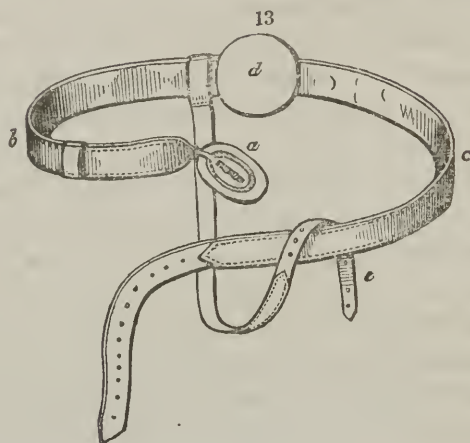
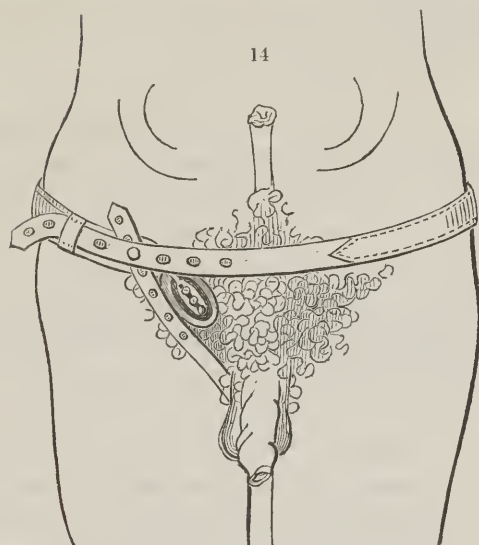


FIG. 13.—*a* The block and block-attachment.

- b* The part of the spring which bears the greatest stress and requires the highest temper.
- c* The termination of the spring, made more flexible, and extending to the edge of the os ilium between the two spinous processes on the opposite side of the body.
- d* The back-pad seen in situ.
- e* The perineal strap with its end thrown round the extremity of the spring-cover.

Having thus analyzed the several parts of the Inguinal Truss of Dr. CHASE, the Committee feel bound honestly to state their conviction that this instrument surpasses all others known to them in the accuracy and permanence of its retentive power in common Inguinal Hernia; a conviction fully sustained by all their practical observations of the action of trusses. The instrument is worn with so much comfort, that patients generally relinquish it unwillingly, and sometimes *absolutely refused so to do* even when pronounced well by the surgeon.

CHASE'S COMMON INGUINAL TRUSS APPLIED.



The Committee find themselves unable to suggest any improvement, or to point out any defect of principle or construction in this truss as now employed by the inventor.

CHASE'S VENTRO-INGUINAL BLOCK.

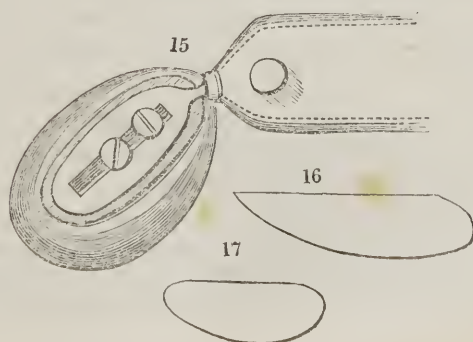


FIG. 15.—The attachment being in all respects similar to that in fig. 10, no references are required.

FIG. 16.—Longitudinal section of the block.

FIG. 17.—Transverse section.

It will be recollected that at the time of the Preliminary Report, Dr. CHASE employed in ventro-inguinal hernia, either his own common inguinal block, or a modification of Hood's block with a parabolic projection. The former did not furnish sufficient security against protrusion, and we have already mentioned that the latter, though approved by the Committee as the best solid block then in use for inguinal hernia, is liable to some decided objections, not altogether unattended with danger. The Committee, therefore, stated that they considered "a more perfect instrument to fulfil the same purposes, both possible and desirable." (Prel. Rep. 323.) Their views on this subject having been freely communicated to Dr. CHASE, who was already conscious of the necessity of improvement in this instrument, he devoted his mechanical talent to the removal of the difficulty. The result was the construction of the ventro-inguinal block, described by the Chairman under the head of American Intelligence, in the same number of the American Journal which contains the report, (p. 543.)* At the time that the note

* "Chase's ventro-inguinal block, resembles the common inguinal block, strongly compressed upon its broader convexity, until the more sudden curvature is made to overhang the base to a great extent, particularly in the middle of the length of the block, so that when the block is placed on its base and viewed perpendicularly, it presents on one margin a semi-elliptical curvature, and on the other an effuse parabola. This form permits the effective pres-

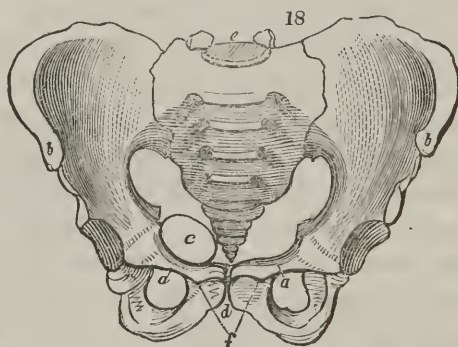
was written, the Committee had not enjoyed an opportunity of testing the practical application of this block. They have since witnessed its operation in many cases, some of which were of a very unfavourable character.

— It is extremely difficult perfectly to retain a ventro-inguinal or direct hernia by any of the forms of soft pads, as it is indispensably necessary that those pads should press extensively upon the brim of the pelvis, in order that they may completely guard an orifice bounded on one side by the pubic bone. This pressure not only increases the number and severity of the cases of varicocele, a disease of frequent occurrence, under the use of all trusses, though seldom of much moment, but it also gives rise occasionally to troublesome hydrocele, and sometimes to wasting of the testicle. The form of CHASE'S ventro-inguinal block is so accurately adapted to that of the os pubis, that it has secured the bowel perfectly in every instance of ventro-inguinal hernia in which it has been seen applied by the Committee. The primary adjustment of the truss is considerably more difficult, and requires more time and skill in the worst cases of this accident than in the inguinal variety, but the ultimate success of retention does not appear to be less perfect when once accomplished. The pressure of this block upon the os pubis has been made a subject of complaint in

sure of the block to act very near the brim of the pelvis, without injuring the spermatic cord, or contusing the integuments against the bone; and it would appear difficult to contrive a form of pad better fitted to secure the retention of the bowel in this very troublesome variety of hernia."

only one instance, and the inconvenience then resulted from a slight mal-adjustment in the first application, which being corrected, the difficulty never recurred.

FIG. 18.—A VIEW OF THE PELVIS, WITH CHASE'S VENTRO-INGUINAL BLOCK IN SITU—TO SHOW THE ADAPTATION OF ITS CURVATURE TO THE FORM OF THE BODY AND SPINE OF THE OS PUBIS.



- a a* The bodies of the pubic bones.
- b b* The anterior superior spinous processes of the ilia.
- c* The ventro-inguinal block in situ.
- d* The symphysis pubis.
- e* The base of the sacrum.
- f* The spines of the pubic bones.

As regards the accidents consequent to the use of this instrument, the coexistence of varicocele has been observed in several instances, but the Committee think, not more frequently than after the use of the old common Inguinal Trusses. This affection, to the extent noticed, is so common in persons labouring under hernia, and even among those who are not affected with any other disease, that they feel considerable doubt whether

in the cases observed, it was generally referable to the action of the truss, to the pressure of the intestines when protruded, or to some pre-existing cause. They have not been able, in more than one instance, to determine, positively, that it was caused by the instrument, and in no case has it produced material inconvenience. One case of slight and temporary hydrocele has been observed by the Chairman, and in this the hydrocele attracted but little attention until after the patient had been ordered to relinquish the truss. It occasioned him some alarm at first, for he supposed that a relapse of hernia had taken place; but the symptoms disappeared in a few weeks. (Case V.)

An Agent for Dr. CHASE mentions another similar case, but it appears, from the slender amount of evidence heretofore obtained, that this form of hydrocele is of short duration, and of no material importance. In the very old and extensive ventro-inguinal hernia described in Case I., there was an alteration of texture observable on the side corresponding with the hernia, both in the spermatic cord and the testicle, the latter being almost destroyed by absorption. The Chairman of the Committee, by whom these parts were most cautiously examined, is decidedly of the opinion that this change could not have been induced by the pressure of the wooden truss-blocks employed, defective as some of them were, because it is unreasonable to suppose that such results could have followed an embarrassment in the circulation of the cord, in the short space of time during which the hard blocks were in use, without occasioning pain or inconvenience to the patient.

It is fair to conclude, then, that as the condition of the testicle had never been perceived by the patient until pointed out by the Committee, the absorption was the result of the long continued action of the ill supported intestines, together with the occasional pressure of ill applied trusses upon the pubic bone.

The Committee are, therefore, of opinion that there exist no physiological objections to the use of the Ventro-Inguinal Block of Dr. CHASE, which are not equally applicable to all known means of retention in ventro-inguinal hernia: that this block is more accurately adapted to the form of the pelvis, and the parts on which it is intended to act, than any pad or block previously in use, and that it escapes the objections felt to the Ventro-Inguinal Block of Dr. Hood, by the greater regularity of its arched form, and the absence of any angularity or other peculiarity of shape designed for the production of irritation.

The only peculiarity of the Ventro-Inguinal Truss of Dr. CHASE, consists in the form of the block. In every other particular, it is identical with the Inguinal Truss. But, in the application of the instrument, it is necessary that the perineal strap should be secured, at its anterior extremity, to the button on the end of the block-slide, and not to that on the anterior extremity of the spring.

To the complete instrument, as it has been actually employed during the last year, the Committee may

safely apply the same language used in concluding their remarks on the Inguinal Truss.

CHASE'S FEMORAL BLOCK WITH ATTACHMENT.

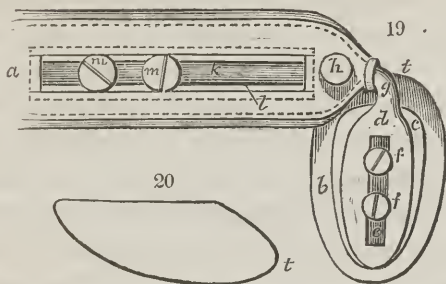


FIG. 19.—The letters from *a* to *h*, inclusive, have the same reference as in fig. 10.

k A window in the anterior extremity of the main-spring.

l The iron neck of the block-slide, continued along the main-spring for some inches and seen through the window *k*.

m m Two broad-headed screws of the spring-adjustment, securing the flattened extremity of the iron neck to the main-spring, and, when loose, permitting it to slide on the main-spring.

FIG. 20.—A longitudinal section of the femoral block.

The comparative rarity of femoral hernia, and the fact that a large proportion of the cases of this class occur in females, have prevented the Committee from receiving testimony upon a sufficient number to form a safe basis for calculation in estimating the value of instruments by practical tests alone; and they feel under the necessity of treating this branch of their subject chiefly as a mechanical question.

Even the anatomy of femoral hernia has not been very well understood until recent times, and this fur-

nishes the only reasonable excuse for the fact that, no truss expressly designed for the treatment of this variety of hernia has ever been strongly pressed upon the attention of the profession. Many trusses have been indeed advertised as applicable to all the forms of hernia;—a degree of pretension carrying with it the proofs of its own fallacy;—and certain works on surgery contain directions for slight modifications in the form of the pads, the curvature of the springs, and the mode of application of inguinal trusses, to adapt these instruments to cases of femoral hernia; but your Committee cannot recall any apparatus entitled to the name of a femoral truss, (the invention of Dr. Hood being not a truss, but simply a block intended to be added to the spring of one of the common trusses under certain circumstances) prior to the construction of the instrument of Dr. CHASE, which is now under examination.

It is proper to recall the attention of the Society to a peculiarity already pointed out as common to all the trusses previously in use, and to the femoral block of Dr. Hood. The pad or block invariably covered not only the site of hernial tumour, but also a portion, and generally a considerable portion, of Poupart's ligament. The pads or blocks which act in the manner above described cannot effect any great certainty of retention unless the ligaments be made to yield, and the neck of the hernial sac become pressed against the pubic bone with considerable firmness. In the opinion of your Committee, the degree of pressure required to accomplish this purpose would exceed the power of

any truss-spring, and the capacity of endurance possessed by the patient, or that of the parts acted upon by the instrument.

All the instruments employed prior to the invention of Mr. Stagner are liable to another objection. They press upon so large a surface, that when employed in femoral hernia they are necessarily liable to displacement in the extensive motions of the thigh.

When the Committee view these remarks, in connexion with the fact that they have met with no detailed and satisfactory records of the radical cure of femoral hernia, by instruments, prior to the year 1835, they are strongly induced to conclude that, no truss employed before the invention of that of Dr. CHASE was capable of securing and maintaining that perfect retention of the last portion of the bowel beneath Poupart's ligament, which, by the hypothesis adopted in this Report, is indispensably necessary to the radical cure of this form of hernia.

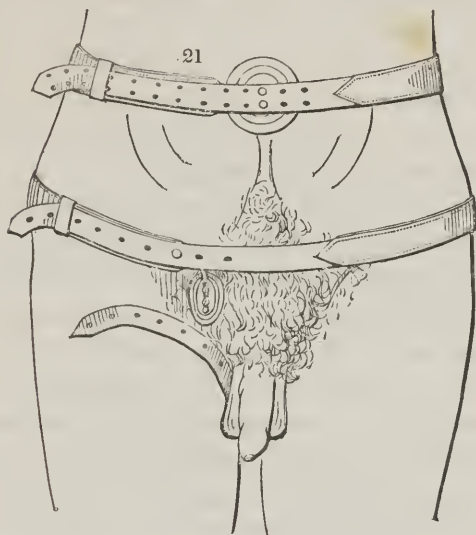
It will be naturally asked, why, if the retention has always been imperfect or inconstant, have so many patients, labouring under femoral hernia, been secured for years against strangulation.

The reply does not appear difficult. The older trusses, with soft pads, when arranged with great care, were quite capable of closing all that part of the hernial sac which lay below Poupart's ligament; and if, during exertion, or unusual flexion of the thigh, a small

portion of intestine was accidentally protruded into the sac, the pressure of the pad must have acted as the best of all modes of taxis, the moment that the exertion ceased or the position of the limb was changed. This action would tend to confine the protrusion almost constantly to the femoral canal, which, being very short and narrow, cannot accommodate a sufficient amount of intestine to produce much danger of strangulation, or to arrest the passage of alvine matter; yet the frequent presence of even minute portions of intestine in the canal, would effectually prevent the contraction of the orifice and destroy the hope of radical cure. The belief that trusses with soft pads do not actually retain femoral hernia, receives additional support from the symptoms of abdominal uneasiness, indigestion, chronic pains, &c. which are usually made a subject of complaint with those who are treated by such instruments both in this kind of hernia and in the inguinal varieties; symptoms which speedily disappear in the latter, when the retention is made accurate and constant by the instruments already described.

It appears, then, that Dr. CHASE in attempting the construction of a novel truss peculiarly adapted to the treatment of femoral hernia, ventured upon untrodden ground. We will examine the result.

FIG. 21.—CHASE'S FEMORAL AND UMBILICAL TRUSSES, APPLIED.



(a) *Of the Femoral Block.*—At the time of the Preliminary Report, Dr. CHASE was in the habit of employing, for femoral hernia, a block in all respects similar, except in size, to that designed for common inguinal hernia. This was applied in such a manner as to act entirely below Poupart's ligament; and, when sunk by the absorption of the subcutaneous fat, &c. its upper extremity tended to oppose directly, and therefore powerfully, the descent of the intestine beyond the margin of the ligament; but it was abandoned soon after the presentation of the report, when the doctrine of cure by irritation was shaken by the course of the investigations; and it was suggested that possibly a block could be invented, which, by becoming imbedded

in the integuments, might act by means of a suitable prominence beneath the edge of Poupart's ligament, and by pressing the soft parts directly upward, might arrest the bowel at the edge of Gimbernat's ligament, so as to render the retention as accurate as that obtained in inguinal hernia. This suggestion led to the invention of the femoral block mentioned in the note of the Chairman, already quoted. It is very difficult to describe the form of this block, and the Committee will refer to the treatise of the inventor for the best description and an excellent wood-cut representation of it. By considering the mechanical principles of its action, together with the only case fairly before the Committee in which it has been employed, (Case X.) it is deemed safe to recommend it as preferable to any pad or block previously employed in this variety of hernia. It is calculated to preserve its position more accurately than the one before in use; it is not liable to become disturbed by the motions of the thigh; and it gives support in a direction which enables it to act at the greatest mechanical advantage. How far it may answer the special purpose of its construction, by entering under the fold of Poupart's ligament and acting almost directly on the femoral ring, the Committee will not venture to judge upon the evidence of a single case. The report of Dr. CHASE as to its result in other instances, is favourable, but neither that gentleman nor the Committee regard it as having acquired the highest degree of perfection of which it is capable. It will, probably, undergo further modification.

(b) *Of the Block-Attachment.*—The extreme accuracy

desirable in the adjustment of the small femoral block, renders the mode of attachment a matter of great importance. Dr. CHASE has succeeded in reaching, in this respect, a degree of perfection much higher than that attained by any of his predecessors. The relation of the femoral ring to the parietes of the pelvis varies in different individuals to a much greater extent than that of the abdominal canal, and its variations are not so nearly confined to one right line. The soft iron neck of the block-attachment in this truss is bent at a right angle, so as to place the long diameter of the block in a position perpendicular when the patient stands erect. In this position the motions of the block-slide, which are similar to those observed in the preceding trusses, adapt the block to the height of Poupert's ligament with great nicety; but to meet the peculiarities of individuals in regard to the distance between the wing of the ilium and the femoral ring another arrangement is necessary. There is a fenestrum, two inches in length, in the anterior extremity of the spring; and the soft iron neck, instead of being permanently secured to the spring, is elongated two or three inches, curved, flattened, and attached to the spring by means of two screws, which pass through the fenestrum, and, when loosened, play freely therein, so as to allow the block to approach or recede from the mesial line to any required degree. This double adjustment is simple, secure, and perfectly accurate.

There is no other peculiarity in the spring or appendages of this truss, but the perineal strap is always secured in front to the button on the bottom of the block-slide.

FIG. 22.—CHASE'S DOUBLE TRUSS—PREPARED FOR A DOUBLE INGUINAL HERNIA.



- a* The two common inguinal blocks with their attachments.
- b* The spring-cover of the left truss terminating in the strap *c c c c*.
- c c c c* The pelvic strap of the left truss, thrown into loops, and passing through an opening beneath the base of the attachment of the strap on the right side at *e*, like the flexor tendons of the last phalanx of the fingers through the terminations of those of the second phalanx.
- d* The spring-cover of the right truss terminating in the strap *f f f f*.
- e* The site of the commencement of the pelvic strap of the right truss, secured by the edges to the spring-cover, but permitting the left pelvic strap to pass up from under its base so as to become superficial in the rest of its course; this arrangement being concealed by the instrument.
- f f f f* The pelvic strap of the right truss thrown into loops.
- g g g g* Loops confining each pelvic strap respectively to the spring cover of the opposite truss.
- h* The two springs seen one behind the other, and naked, between the ends of the spring-covers.
- k k* Dotted lines representing the spots where the spring of each truss terminates within the spring-cover of its fellow.
- l* A dotted line representing the proper position for the back-pad.

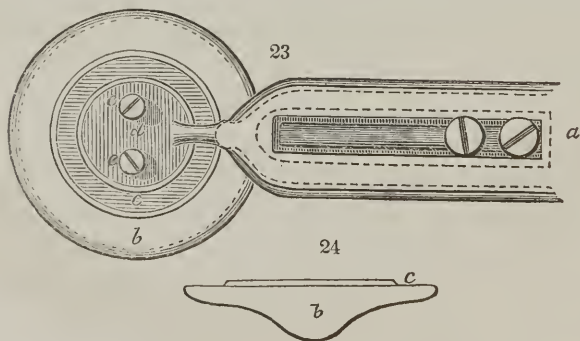
Great difficulty has always been experienced in treating double hernia when the bowel protrudes on both sides of the lower boundary of the abdomen. The double trusses which have been from time to time constructed, have been formed by encircling the back and sides of the pelvis with a single spring armed with a truss-pad at each extremity; or the two halves of the spring, divided at the spine, were connected by means of a slide or hinge. Notwithstanding the many modes of adjusting the pads in the attempt to effect their accurate adaptation, it was found, practically, that the rigidity of these instruments rendered it impossible to secure the springs properly upon the pelvis or the pads upon the hernial orifice, and none of them have ever obtained the sanction of the profession. The imperfect action of the double trusses, drove the surgeon to the necessity of employing two single trusses in the treatment of double hernia; but here, again, the treatment is surrounded by difficulty; for the interference between the springs behind, and the twisting of the two straps round each other in front, render retention uncertain, and produce great annoyance and disgust to the patient, from the clumsiness of the machinery.

Since the Preliminary Report was read, Dr. CHASE has invented the admirable instrument now for the first time presented to the Society. It is an association of two single trusses, so combined as to be perfectly independent in their action, without the slightest mutual interference, yet so associated by means of the straps and loose spring-covers, that they present the appear-

ance, and act with all the convenience of a single instrument. Each spring, at its posterior extremity, re-enters the spring-cover of its fellow, and the strap of one truss passes smoothly through a passage beneath the commencement of that of the other, so that both sides appear symmetrical, as far as the springs and appendages are concerned, and the straps do not in the slightest degree embarrass each other. As the peculiarities of this instrument are confined to the spring-covers and straps, which are suited alike to the trusses for inguinal, ventro-inguinial, and femoral hernia, the instrument can be adapted, at a moment's notice, to any possible combination of these three forms of the disease, so long as the varieties exist on opposite sides of the abdomen.

The Committee cannot speak too highly of this beautiful invention, but it may be safely permitted to speak for itself.

FIG. 23.—CHASE'S UMBILICAL BLOCK AND ATTACHMENT.



- a* The anterior end of the spring, with the same kind of spring-attachment as in the femoral truss.
- b* The circular block.
- c* The circular block-rider.
- d* The circular iron disk supporting the block-rider.
- e e* Two button-headed screws attaching the rider to the disk, and serving at the same time to secure the strap.

FIG. 24.—Section of the circular block.

The peculiarity of the block in this instrument consists in its having a central prominence on the convex face, which prominence is a segment of a much smaller sphere than that which furnishes the margin of the block: it is thus made to correspond more nearly to the form of the parts about the umbilicus, while its effuse margin prevents the danger of too great absorption under its pressure.

The block with its brass rider is attached to a circular expansion on the anterior extremity of the soft iron neck, by means of two screws, one placed vertically about an inch above the other, and so formed as to serve at the same time as buttons, on which the strap is secured by means of a double series of eyelet holes. Of course, then, there is no mobility in this attachment. The only adjustment required is in a circular direction, and is accomplished by means of the following arrangement. The spring is placed horizontally. Its anterior extremity is provided with a fenestrum five inches in length. The soft iron neck is about six inches long, and is secured to the spring by two screws which pass through the fenestrum, and may be made to slide therein precisely as those do which are seen in the corresponding part of the Femoral Truss.

The back-pad is made oblong instead of round, and is supported by two leather loops instead of one, as in the other trusses. It is arched transversely, and is about six inches long by four inches wide. This form is required to give support to the spring on the broad and flattened portion of the back.

This truss has secured the perfect and constant retention of the bowel in all the cases seen by the Committee, two of which were of a peculiarly unfavourable character. In Case XIX. the orifice by which the bowel protruded, extended for two and a half inches in the longitudinal direction, and one and a half in the transverse direction. The patient was enormously loaded with fat, and a block six inches in diameter was required to effect the retention.

In Case XXIV. the peculiar form of the sac and its enlarged tegumentary covering occasioned much embarrassment, as will be seen on reference, but it did not prevent success.

The only accident observed to result from the use of this instrument has been the slight excoriation or mucoid transformation of the skin where it is thrown into folds in consequence of the redundancy occasioned by the sac; an accident observable in bad cases only, one which is easily rendered tolerable by dusting the part with carbonate of zinc or other dry powders, and one, moreover, which is not dependant upon the character of the instrument employed. The Committee

deem it, therefore, almost unnecessary to state their decided preference of this instrument.

VI.—OF THE UMBILICAL BELT.

The Committee will not detain the Society with any particular notice of this contrivance; but will merely state, in passing, that it is composed of a broad band of elastic caoutchouc tissue, armed with the block employed in the umbilical truss, and secured by means of a peculiar buckle. It possesses all the excellencies of the best hernial belts, with better security against creasing than any of its predecessors. But your Committee deem all belts objectionable in the treatment of umbilical hernia, because it is impossible by such machines to effect the necessary pressure at the umbilicus without embarrassing the motions of the ribs and diaphragm in respiration; for the band acts equally at all points, exerting as much force in the lateral as in the antero-posterior direction. When the functions of the parts subjected to the action are taken into the calculation, it is evident that this arrangement is one exceedingly objectionable in a mechanical point of view. In the trusses, on the contrary, the elastic spring effects the necessary retention by its pressure on the back-pad and the block, which precisely counteract each other, and no more lateral pressure is required of the spring or strap than is requisite to protect the instrument from displacement by the friction of the clothes. In condemning the umbilical belt of Dr. CHASE, together with all its predecessors, the Committee feel much pleasure in stating that after practical tests which they

did not deem necessary, it has been frankly relinquished by its inventor, although it has *effected radical cures in two cases*. (See Cases XX. and XXIX.)

One point of importance connected with the question of the retentive power of trusses is the constancy with which they are worn. The instruments of Dr. CHASE, regulated as the force of the springs now is, are worn day and night by the patients, and after the first week, very rarely continue to give any inconvenience.* In order to enable patients to bathe and swim without danger of protrusion, this gentleman has constructed truss covers of India rubber cloth, *the varnished side turned toward the instrument*, which are designed to be used temporarily at watering places. They have been found to fulfil most perfectly the object of their construction.†

As it regards the retentive power of the trusses which have been approved by the Committee, it has been tested in various manners, and severely. Some of the patients, while wearing them, have followed the most trying labours of the harvest field and the marble-yard; others have travelled hundreds of miles on horseback, over mountainous countries. The subject of the

* For directions in the application and use of trusses see "Chase on Hernia," Chap. VIII. p. 127.

† These instruments should be worn at all times, whether in bathing at public resorts or in the private bath, during the use of the truss. A neglect of this *may* produce a return of the disease.
—See *Chase on Hernia*, p. 136. H. C.

worst incurable case of ventro-inguiual hernia,—which had destroyed his usefulness, notwithstanding his endeavours to retain the bowel by means of other instruments,—has since resumed his labours as a stevedore and sailor; some have followed the chase, and leaped fences and dykes, gun in hand, &c., &c.; yet, since the instruments were brought to their present high state of perfection, the Committee know of no instance of protrusion under these exertions. In one case only, the bowel has escaped after the final adjustment, in consequence of carelessness on the part of the friends of the patient, a young infant. (Case XXV.) And in another instance, the insanity of the patient led to the removal of the truss. (See Prel. Rep. Note II.)

Your Committee deem any further comment on the retentive power of the trusses of the second class altogether unnecessary. These instruments certainly fulfil to admiration the two grand requisites which they consider necessary to bring the chances of radical cure in hernia to a maximum.*

* “If, however, the irritation be so important as it is deemed by some, there is no necessity, with your apparatus, to resort to any other application than the truss, the blocks of which may be made to produce the effect to any extent required.

“You have done me the honour to ask my individual opinion on the *modus operandi* of your trusses, after the examination of numerous cases. It is frankly this:

“They owe almost all their very remarkable success to their perfect retentive power, which is probably aided by a little moderate irritation from pressure in umbilical, direct, and ventro-inguiual hernia, possibly in common inguiual hernia, but not in femoral hernia. It is scarcely practicable to apply the instruments without

The extensive remarks already made on the effects on the tissues, produced by the first class of trusses, render it unnecessary to enter at length on those attending the use of the instruments just described; the institution of a fair comparison will be sufficient.

The irritation occasioned by the blocks of Dr. CHASE is much less severe than that observed when blocks of the first class are employed. That they are capable of producing much irritation, if such a result be desired, is obvious from the history of the case to which reference was made in the last paragraph; in which case inflammation was intentionally brought on, in order to test the powers of the instrument. More or less primary redness has been observed in nearly all the cases, though there have been some in which it could not be distinctly recognised. Except in the case just mentioned it has been always inconsiderable and evanescent, unless the patient had increased it by disobedience to orders. It has never shown that disposition to produce callosity around the margin of the block, which was noticed in some of the cases treated with other instruments. The absorption consequent on the long continued application of the block takes place more

producing as much irritation as I should think advisable, and I have been increasingly pleased with their effects, as your blocks have been gradually improved from time to time, in such a manner as to remove the danger of inflammation, and to reduce the irritation to a moderate redness. They are now convenient, pleasant, and safe in their action.”—*Extract from Dr. R. Coates's private letter to Dr. Chase on the action of his trusses. See Chase on Hernia, p. 125.*

slowly, and seldom brings the skin into quite as close approximation to the tendons beneath. In very fat subjects, the block sometimes becomes deeply embedded, but their size and generally rounded form appear to prevent all danger of absorption of the tendons under the pressure. The secondary hyperemia, resulting from the functional debility of the compressed capillaries, is noticed in every case, but in less degree than when other hard blocks are used, nor does it continue so long after the removal of the instrument. The Committee have never seen inflammation supervening after the subsidence of the primary irritation. It is remarkable that in many cases, the capillaries have partially recovered their tone under the pressure of the blocks, and the secondary hyperemia has been diminished after the trusses have been worn for a considerable time. The redness resulting from this cause is of course noticed in patients who resort to any species of truss, and the Committee, not being willing to trust to their memory of past experience unaided by notes, cannot institute a fair comparison in this respect between the effects of soft pads and the blocks of Dr. CHASE. Their impression is that the effects of the latter are more obvious than those of the former, but that the difference is of no practical importance. Attenuation of the skin has not been remarked in any patient employing Dr. CHASE's trusses in their present state of perfection.

Definitively; the Committee have been unable to trace any distinct connexion between the superficial effects of these instruments, and the changes perceived in the tendinous margins of the hernial orifices noticed

during the time of their employment, changes which will next claim our attention.

The absorption of the subcutaneous fat, &c., following the use of these trusses as well as those of the first class, being unaccompanied with any thing like adhesion between the integuments and the tendons beneath, the thin skin of the scrotum is reverted beneath that of the inguinal region with great facility; and in hernia located there, the precise condition of the edges of the hernial orifices may be examined by the finger in the most satisfactory manner, and the following results have been obtained by the inspection of a large number of cases.

The orifices of very large ventro-inguinal hernia are found to contract rapidly after the perfect adjustment of the block, so that a few weeks or months will sometimes suffice to reduce an opening which will receive three fingers, with the skin of the abdomen inverted to less than one half its original area. (See Cases I. and XI.) These extreme cases have generally been found in persons advanced in life; and, as the length of time which has elapsed since the very commencement of our investigations is less than three years, many of the cases presented to us are necessarily of recent date, and the question of radical cure remains, in them, still undetermined—if indeed it be reasonable to entertain a thought of such an occurrence under circumstances so extremely unfavourable. But this may be safely said:—The contraction continues upon the increase in all the cases yet incomplete, and no

assignable limit short of the natural dimensions of the external ring have been ascertained! The instances referred to, will furnish the Society with a tolerable idea of the importance of the results in the few cases which have been under observation for twelve months or more.

While this contraction is taking place, the tendinous margin of the ring appears to increase very gradually in thickness, and the impression is produced that the substance of the tendon is enlarged by an interstitial deposition. This deposition is decidedly soft at first, but though rendered by degrees more firm and resisting, it does not distinctly assume the well marked characters of the purely fibrous expansion in which it is formed, within any period yet determined, at least so far as can be ascertained by the sense of touch.

In common inguinal herniæ, even when they have become nearly direct, and in ventro-inguinal hernia of recent date, or moderate extent, the contraction and thickening continue on the increase until the affected ring is often rendered smaller, and, sometimes, much smaller than in the normal condition. (See Cases V. and XXIII.) The progress of the finger in the attempt to penetrate the external ring is then resisted with decidedly more firmness on the affected than on the uninjured side, and this is obviously the case in one instance in which there appears to have been congenital weakness of the parts on both sides. (Case III.)

In common inguinal hernia, the upper orifice at the

internal ring is entirely beyond the reach of examination, and it is only by analogy that we can arrive at any inference with respect to its condition. The same remark holds good in relation to the condition of the orifice in femoral hernia.

It is unnecessary to point out the influence which the changes just described must exert in preventing the exit of the intestine. They will be understood by the Society without further comment.

The Committee do not feel called upon officially to express any theoretical opinions as to the mode in which nature accomplishes the contraction of the tendinous orifice in hernia when treated by means of the instruments now under notice, but it is their duty to state that they cannot trace the agency of any irritation produced by the truss-blocks in the history of these changes. The letter of the Chairman on the *modus operandi* of Dr. CHASE's apparatus, as published in the treatise of the latter gentleman, contains a full account of the opinions of one of the members on this subject, and the remainder of the Committee are not prepared to combat the positions therein maintained. If the theoretical views alluded to be correct, the singular fact of the contraction of the ring to a size still smaller than the natural one would be accounted for, either by supposing that there remained a persistent callosity about the orifice, like that which sometimes continues long around the track of an obliterated fistula, or that the union of ruptured fibres formed an irregular tendinous mass, like the surplus amount of new bone which

is produced by the reuniting of a fracture. It is not impossible that both these causes may contribute to produce the appearances described, and it becomes, therefore, a question of much interest to determine how long the undue firmness of the ring may continue; or, in other words, how far the deposition about the margin is provisional, and how far it is permanent. It would be certainly surprising, though by no means impossible, that the cure, when effected, should give the patient better protection than he enjoyed before the accident. This point can only be decided after several years of observation upon the same cases, and it is recommended to the attention of the Society.

The sac, when thin or small, generally escapes observation, and is probably obliterated or returned before the conclusion of the treatment; but when large and thickened, it is found continually contracting and approximating to the orifice by degrees. It is not always wanting when the tests of radical cure are applied without producing protrusion: while it remains, it is generally found more or less distended with fluid. In the letter of the Chairman, already referred to, there will be found a notice of a curious case of umbilical hernia, in which the sac remained, and presented its connexion with the cavity of the abdomen long after protrusion had been rendered apparently impossible by the contraction of the orifice, under the use of a block of lead, moulded to the form of the part.* One case of inguinal hernia occurring in the practice of Dr. CHASE, was

* Chase on Hernia, p. 109.

attended with somewhat similar circumstances. (Case V.) These may be regarded as remarkable exceptions to general laws, but they are sufficient to establish two important positions; first, that a perfect occlusion of the neck of the sac is not indispensably necessary to the permanent retention of the bowels by natural means; and, secondly, that the changes in the tendinous margin of the orifice are not *invariably* productive of such occlusion. The latter of these positions furnishes a most powerful argument against the doctrine that the changes just mentioned result from the irritation produced by the truss-blocks.

After all that has been stated, the Committee feel themselves fully warranted in the following conclusions.

1. The retentive power of solid blocks is, *cæteris paribus*, superior to that of soft pads in the treatment of hernia, as has been already stated in the Preliminary Report.

2. The chances of radical cure depend upon the perfection and permanence of the retention.

3. The perfection and permanence of the retention depend—first, upon the mechanical action of the instruments; and, secondly, upon the power of the parts affected to bear that action without danger of physiological accidents of sufficient importance to interfere with the treatment.

4. All the instruments with solid blocks contrived before the recent inventions of Dr. CHASE, are decidedly liable to important mechanical objections, and all of them, with the exception of the Rachet Truss, are moreover capable of producing physiological accidents of sufficient importance to interfere with the treatment.

5. The construction of the Rachet Truss is such as to render retention uncertain even in ventro-inguinal hernia, to which form of the disease alone, it is tolerably well adapted.

6. The instruments of Dr. CHASE have effected the permanent and accurate retention of the intestines in every case of hernia observed by the Committee, without material inconvenience to the patient, and often under trials more severe than are usually ventured upon by those who wear other trusses; trials which would be imprudent with any other apparatus known to the Committee.

7. If we except the Femoral Truss, these instruments have stood the test of much practical application without superinducing any physiological accidents of sufficient importance to interfere with the treatment.

8. The mechanical principles upon which the femoral truss is constructed appear highly ingenious and promising; and unless this instrument should be found hereafter to be productive of important physiological

accidents, it must take precedence of all other modes of treating this variety of the disease. No such accidents are yet known to have been produced by its employment; but the Committee have not enjoyed the opportunity of personal inspection in a sufficient number of cases to determine general results, nor do they deem it proper to receive evidence from any other quarter in discharging the trust reposed in them by the Society.

The Committee are induced by the foregoing conclusions to recommend, in strong terms, the instruments of Dr. CHASE to the confidence of the profession, as the best known means of mechanical retention in hernia, and as furnishing the highest chances of radical cure.

The Committee have not deemed it necessary to institute a *numerical comparison* between the degree of success attending the use of soft pads and hard blocks in the treatment of hernia; for the testimony of the highest surgical authorities, their own experience, and the general feeling of the profession, sufficiently prove the rarity of the cure of hernia by any of the apparatus in use previously to the commencement of the present investigation. They think they have done the most ample justice to the claims of the older trusses by the statements contained in the Preliminary Report, (p. 324,) statements which are less opposed to the claims of common trusses than are the opinions of Professor Hey of Leeds, Tavernier, Abernethy, Sir

Astley Cooper, and many other European authorities of the highest class.*

Before endeavouring to estimate the chances of radical cure by the use of Dr. CHASE's trusses, it is necessary to determine what is meant by a radical cure.

A variety of facts have been collected by Dr. CHASE which tend to show that vices of formation predisposing to hernia are sometimes hereditary in families, and that congenital weakness of one abdominal ring is not unfrequently accompanied by a similar condition of the other ring, and also of the umbilicus.† In cases

* But the slightest examination into the writings of the most eminent surgeons will be sufficient to convince the reader that there is very little dependence to be placed in the retentive power of any of the trusses now in general use as a means of radical cure, unless in cases of young children.

The sweeping denunciations uttered by PERCIVAL POTT, against those who pretend to accomplish this desirable object by mechanical contrivances, are scarcely weakened by the faint hopes of occasional success to be found in the works of LAWRENCE, RICHTER, SIR A. COOPER, DORSEY, &c., and the mechanical treatment of Rupture, as prescribed by the most experienced men in the profession, may be summed up in the pithy sentence of ABERNETHY.

"You return it (the bowel); put a truss on it, and keep it on."

Some of those who employ astringent applications, boast of greater success; but if the results which they report had been fully borne out by further experience, it is very improbable that the disease would have continued to be regarded so hopeless in character."—*Chase on Hernia*, p. 104.

† See Chase "On Hereditary Hernia," in *Treatise*, Chapter XI. p. 192.

of the latter description, hernia is occasionally observed consecutively or consentaneously in each of these positions. Facts of this nature have probably given rise to the opinion expressed by some recent inventors of double trusses for the treatment of single hernia; namely, that the retention of a hernia on one side is like to produce a hernia on the other. The Committee see no foundation for this opinion, unless the strength of the spring of the truss be made much greater than necessary, or in cases of enormous herniæ, in which the bowels have been allowed to remain protruded for so long a time that the abdominal muscles have become accustomed to an unusual degree of contraction.

Granting, however, for the sake of argument, that the liability to a consecutive hernia is increased by the retention of one already existing, the use of the double trusses in single hernia would still be objectionable, because the whole amount of pressure to which the abdomen is subjected by them is obviously at least twice as great as is necessary to effect retention, and hence the danger of consecutive umbilical hernia from the action of the instrument is at least doubled. It is obviously a task of extreme difficulty, if indeed it be not impossible, to guard against the occurrence of hernia at all its usual orifices, and the number of consecutive cases will probably be found to form a very small per centage on the whole number placed under treatment. The Committee, therefore, disapprove of the employment of trusses as a prophylactic measure.*

* An attempt was made in 1835 to introduce an instrument of

Returning from this apparent digression, it does not seem proper to consider the consecutive occurrence of hernia in one situation as a disproof of the radical cure of a previous hernia in another situation.

As all men appear to be subject to this kind of accident under the action of certain forces, it would seem at first sight unreasonable to expect any course of treatment to effect a degree of security against the recurrence of the protrusion in any individual, greater than that which existed prior to its first occurrence; and hence a cure may be fairly considered radical, without supposing the part affected relieved from the possibility of a reappearance of hernia at the same spot, under all possible circumstances and casualties.

this description into use in this and other cities in the United States, upon the supposition that in single ruptures support on both sides of the pelvis was required. This truss, known as Hittle's, is thus noticed in the *Journal of the FRANKLIN INSTITUTE*.

"It is assumed by the patentee that if pressure is made on one side only, this pressure tends to rupture the opposite side, an opinion not at all sustained by experience, or founded in reason."
—Vol. XVI. p. 385.

In accordance with the views of the Committee, it may be stated that I have carefully watched the action of trusses in more than two hundred cases, and have never seen a rupture produced by the action of a well regulated instrument. It is by no means unusual among debilitated and worn out constitutions, to find a general weakness in the inguinal regions, and more particularly among those who have laboured under hernia for years, and have worn the semicircular springs which give support at two points only. Patients of this description who employ the semicircular springs of Hull and others, should always wear the Russian belt as a support to the abdominal muscles.—H. C.

The cases already mentioned in which the external ring has been contracted to a greater degree, and has been rendered firmer than natural during the course of treatment, tend to show that in certain instances the resistance to protrusion is greater after the cure than it was before the accident; and hence, that hernia from future injury would be more likely to occur elsewhere than at its first location. It is not unreasonable to suppose that this increased security may be sometimes permanent, but years of observation are necessary, as has been already stated, to determine how general the applicability of the rule may be.

In answer to the quere, then—What is meant by a radical cure?—the Committee conceive the following reply the fairest and most rational that can be offered.

A cure is radical, when the tendinous and fascial barriers to the egress of the bowel are brought or restored to their normal or original firmness and power of resistance.

The only means by which such a result can be tested, are the firmness and resistance of the orifice when placed where it is subject to examination, and the absence of all appearance of protrusion after the truss has been relinquished for some weeks or months, and after the patient has pursued his usual avocations, resorting frequently to more severe exercises, such as coughing, leaping, fatiguing walks, swimming, lifting, dancing, riding on horseback, &c.

A variety of causes have tended to reduce the number of cases in which the whole history of the accident, the treatment and the result has been placed within reach of the Committee. Among the most important of these may be mentioned, the extreme unwillingness of many patients to relinquish the use of the truss, even when urged to do so by the united advice of their surgeon and the members of the Committee; the removal of many patients to a distance after having been a long while under treatment, but before it has been deemed perfectly safe to lay aside the instrument; and the unwillingness of some persons to submit to the necessary examinations;—yet, notwithstanding these difficulties, the amount of indubitable evidence actually furnished on the question of radical cure has been considerable, though none has been relied upon as a basis for conclusions, except such as has been furnished by the actual examinations of one or other of the members of the Committee, and the testimony of the patients themselves.

All the individuals who have relinquished the use of the trusses approved by the Committee, after having worn them for six months or more, and who have been afterwards examined by a member or members of the Committee, have been subjected to the necessary tests, and are believed to be radically cured in the sense of the foregoing definition. A still larger number who are yet under treatment give promise of a similar result, and those who refuse finally to relinquish the instrument on the advice of their surgeon, present, in the firmness of the rings, and in the ab-

sence of protrusion under exertions performed when the trusses are temporarily removed, very strong grounds for believing the cure to be radical in them also.

Two cases only of old ventro-inguinal hernia, occurring in persons of nearly sixty years of age, and so large that the orifices admitted of the free passage of two or more fingers within the reverted skin, have been deemed incurable; but even in these, the contraction of the rings, and the resistance to protrusion when the trusses have been removed by the patients for a few hours, render the impossibility of cure by no means certain; and it is deemed improper ever to subject the patients to the tests necessary to determine the question. The enormous umbilical hernia which is the subject of note marked Case XIX., is in all probability incurable.

The cases observed include all the usual forms of external herniæ, whether resulting from mechanical or physiological causes; and also, some instances of double and triple herniæ.* The complications which

* Triple herniæ are not uncommonly met with by those who have considerable experience in the treatment of this affection. One case of double inguinal and one case of single inguinal accompanied with umbilical hernia, and one case of double ventro-inguinal with femoral hernia, have recently occurred in my practice. The case of double inguinal and umbilical occurred in a boy seven years old. Two cases of inguinal and femoral herniæ on the same side has been met with in the practice of Dr. WARREN, of New Orleans, and one patient presented himself to Dr. MARTIN, of Havana, Cuba, labouring under double inguinal hernia combined with femoral of

have not been presented are known to be very rare, and the Committee therefore feel no hesitation in ex-

the left side. In the fall of 1835, in company with Dr. Cook, of Westchester, Pa., I examined a gentleman quite advanced in years, who was labouring under an inguinal hernia of the right side, and a femoral of the left, which passed down half way to the knee. I applied an instrument to-day to a lady who has ventral herniæ. She received a kick from her husband ten years ago. The bowels protruded at three different openings near the umbilicus. She has tried several of the old trusses to no purpose. Her bowels are now perfectly retained by an instrument such as is described in Case XXVIII. of the report.

Dr. Gage, of New York, has also met with one case of inguinal, combined with umbilical hernia. The following case, marked by very curious circumstances, occurred in the practice of the last named gentleman, who has kindly reported it to me. I quote his words:

One of my cases, which to me is of great interest, is that of Mr. P. L., a very worthy man, and one of immense muscular power. He had double inguinal herniæ, the right direct and the left nearly so. He had tried numerous trusses, none of which, however strong the spring, would retain the rupture a moment. His hernial tumours were very large and had rendered him wholly unable to attend to his occupation, which was that of a wheelwright. He had had great trouble in voiding his urine for a long time.

I put on one of your double trusses, which retained the bowel perfectly. On confining the bowel in the abdomen a very severe pain seized him in the bladder, and a very urgent desire to pass water without the ability to pass a drop. In the course of about four hours, in attempting to urinate, very nearly a gill, by measure, of stones of the size of small peas passed away with his water. They were perfectly round and all of the same size, and of a light brown colour, and chalky consistence. For two or three days there were some sandy particles deposited from his urine, when all these appearances ceased. Since that time, which is about six months, he has been perfectly free from every appearance and symptom of gravel.

H. C.

pressing a strong and, they think, well grounded hope that a very large majority of the cases of this dreaded disease will yield to the action of the apparatus of Dr. CHASE, when under the direction of persons of high surgical and mechanical abilities.

It has become a subject of regret, since a number of points of unforeseen interest are found to be connected with the subject, that the Committee have preserved detailed notes of only a few of the cases, and have it not in their power to furnish numerical data for determining the frequency of the several forms of hernia, the relative curability, and the time required for the successful treatment at different ages, together with many other highly important subjects of inquiry. This deficiency is in part supplied by the treatise of Dr. CHASE; and it is understood that a statement of the results of the treatment in Ohio, from the pen of a gentleman of high professional reputation, will shortly appear in one of the western journals. Should these examples be followed in other places, the science will be undoubtedly enriched by many curious and important results.

In their Preliminary Report, the Committee expressed decided opposition to the employment of trusses in infants. Candour demands the avowal, that further observations have shaken their opinion on this subject. Several cases treated at a very early age, by the instruments under notice, have proved that they are borne without inconvenience in infancy. Some instances in proof of this will be found noted among the

evidence in the Appendix to this Report. The adaptation of the trusses to the comfort of children under three years of age, and their superior certainty of action establish their claim to preference over any other mode of treatment. Their applicability, within the year, has been successfully tested in two cases; and it is certain that more force is required to confine the bowels by any form of bandage or compress, than by means of a well regulated spring and block. The only comparative trial of the soft pad and the hard block in an infant, (Case XXIX.,) has resulted in favour of the latter; but the Committee feel bound to urge the necessity of high surgical skill, and extremely careful attention in dealing with these little subjects.

The time required for the radical cure of an ordinary case of ventro-inguinal or direct hernia in the adult, appears to be from twelve to eighteen months. It is probable that the bowel, in common inguinal hernia, is rendered secure in a shorter time, but prudence has prevented the earlier relinquishment of the truss except in a very few cases. The orifice in umbilical hernia, appears to contract somewhat more slowly, but all the varieties recover much more rapidly in childhood.

The evidence, of which circumstantial details are preserved, will be found in an Appendix to this Report; and a case of high interest occurring in the practice of Dr. HENRY BOND, of this city, is added to the list in consequence of its collateral connexion with the question before the Committee, although no remarks will be made upon it on the present occasion.

It will probably form the subject of some comments on a future occasion, by the Chairman in his individual capacity.

The Committee will close their labours by recommending to the Society the appointment of a new Committee, to collect evidence on the several questions noticed as undecided in the present Report.

All which is respectfully submitted.

REYNELL COATES.
ISAAC PARRISH.

NOTE.

During the engrossment and final reading of the above Report and Cases, Dr. ASHMEAD, the third member of the Committee, was prevented from attending its meetings by indisposition and absence from the city, and his name does not appear among the signatures.

R. C.

APPENDIX.

Many of the following cases are collated from the Preliminary and final Reports. Others were noted by the Committee during their observations embraced in their final report alone. Nothing has been added or altered except those phrases which were necessarily removed to preserve the connexion of the same cases as treated in the two Reports. *H. C.*

Ventro-Inguinal Hernia, of 10 years standing, from sudden lifting; age of patient 58 years; imperfect retention from Chase's Ovoidal Block; contraction of the ring; Chase's Umbilical Block substituted for some days; failure of retention; new Ventro-Inguinal block employed; perfect retention; bowels retained for hours under exercise without the instrument in twelve months; further tests of radical cure deemed imprudent; truss ordered to be worn permanently; alteration of cord and testicle.

CASE I. *By the Committee, Oct. 5, 1835.*—P. B. a vigorous seaman, aged 58 years, has been subject to ventro-inguinal hernia since May, 1825. The bowel

descends into the scrotum, and the hernial tumour is said to be enormously large occasionally. The sac is much thickened and extensive, constituting by itself no inconsiderable tumour when the hernia is not reduced.

The accident occurred suddenly, while raising an anchor, the patient being at the time submersed in water. The bowel has never been strangulated. B. is very subject to attacks of colic, but these appear to have been unconnected with any mechanical obstruction of the intestine; as they occurred not less frequently before the accident. A truss with CHASE'S ovoidal block, has been applied since the 15th of July. Two attacks of colic have taken place since that time; and on each of these occasions the pad was removed, and the hernia descended. The last descent took place on the 28th of September, and then, for the first time, the patient was unable to return the hernia without assistance. He sought aid from Mr. CHASE the next day, and the intestine was reduced with some difficulty, produced, as Mr. C. supposes, by the gradual contraction of the ring under the course of treatment. The mouth of the sac was originally so large that the skin could be depressed into the abdomen until the patient could pass three fingers through the ring. After the return of the protruded parts, on the 29th ult. he could not detect the aperture. He has complained, occasionally, of some slight excoriation from the action of the block, but this has never occasioned severe pain. Such is the statement given by the man himself, corroborated by Mr. CHASE, and record book of cases.

The Committee do not think it warrantable, in justice to the patient, to make any examination of the parts beneath the block, until time has been allowed for a more complete condensation of the parts. Mr. CHASE scarcely anticipates such a cure in this case, as will ever enable the patient to dispense entirely with a truss; particularly on account of the nature of his occupations, which are very laborious.

Oct. 13.—B. appeared before the Committee. A very considerable descent of the bowel had taken place from beneath the block. He states that he was yesterday engaged on an election frolic, walked a greater distance than he had done at any previous time for many years, and drank “a great deal too much.” The truss was removed, the bowel reduced by Mr. CHASE, and the ring examined by the Committee. The hernia was direct, and the orifice large enough to admit two fingers.

Dec. 5.—Since the last date, this patient has been presented before the Committee twice, his bowel has been pretty steadily retained by the truss, but another year, at least, will be required to enable the Committee to judge of the full effect of the treatment under such unfortunate circumstances. At present, the case is regarded as incapable of radical cure by any means, but the patient enjoys more comfort than he had before experienced at any time subsequent to the accident; and he is now able to attend regularly to his business. Within the last few days he has used a block similar to the smaller wooden plano-convex blocks, which Mr.

CHASE employs in umbilical, ventral, and occasionally in ventro-inguiual hernia. Of the propriety of the latter change, the Committee will express no opinion. —*Preliminary Report.*

This case was drawn up to the 5th of December, 1835, in the Preliminary Report. (Case I. p. 314.) The plano-convex block, then in use, failed in maintaining the hernia so well as the ovoidal block previously employed for five months. It was, therefore, removed, and the new ventro-inguiual block applied. The ring had contracted very considerably under the previous treatment, if the testimony of the patient himself be deemed conclusive, but it still received two fingers with facility, and the bowel had protruded occasionally, notwithstanding the presence of the instrument, up to the 24th of December, 1835, about which time the new ventro-inguiual block of Dr. CHASE was employed. The retention continued perfect from that time until the Committee lost sight of the patient in August, 1836.

July 11, 1836. The patient, examined by the Chairman, states that he has had no return of colic since the new block was employed. The ring was found a little larger and less resisting than that on the opposite side, the edges somewhat thickened but softer than the original structure. Though ordered to wear his truss at all times, he repeatedly relinquished it during the month of June, and passed from his chamber to the yard, ascending and descending the stairs without it. Once, at night, when he had laid aside the instrument on retiring, he rose, and ran to a fire, at a con-

siderable distance, not discovering the omission until his return. Not the slightest sign of protrusion took place during these exertions. The age and profession of this patient, coupled with the extent of the orifice, was thought a sufficient reason for avoiding any intentional tests of the radical cure of the hernia in this case, and the patient was enjoined to continue the use of the truss during life, notwithstanding the progress of the case had so far transcended any anticipation entertained by the Committee at the time of the Preliminary Report.

The patient was seen by members of the Committee several times after the 11th of July. This truss gave no inconvenience, and he stated that he was generally unconscious of its presence. He had renewed his labours as a ship watchman, and frequently assisted in unloading vessels.

Jan. 12, 1837. This patient has gone to sea as a sailor, and the Committee have lost sight of him.

There were some circumstances of peculiar interest in this case. On the 11th of July, 1836, the spermatic cord on the affected side was found enlarged to at least three times its natural size. It was soft, and did not feel as if the veins were varicose. The corresponding testicle was much reduced in size, and felt like a mass of œdematous cellular tissue enclosed in a firmer, but ill-defined cyst. The sac still continued very thick, but had contracted to about one-third of its former dimensions. The parts were critically examined by

DRS. HORNER and HAYS, and by the Chairman of the Committee. Some doubt existed as to the complete adhesion of the neck of the sac; one of the gentlemen mentioned being convinced of its occlusion; another being of opinion that it remained pervious, and the third declining to decide the question.

Dr. R. COATES was inclined to attribute the enlargement of the cord to an interstitial deposit of the consistence of jelly, and the alteration of the testicle to absorption from an embarrassment of circulation for many years, occasioned by the continued pressure of the protruded intestines and ill-adapted trusses.—*Final Report*.*

Common Inguinal Hernia from a fall; seven years standing; age of patient 13 years. Radical cure in six months, under the use of Chase's Common Inguinal Truss.

CASE II. *By the Committee.* Oct. 5, 1835.—Master S—, a fine healthy lad, 13 years of age, has laboured under inguinal hernia of the right side for about seven years. The tumour has never been of very large size, and is thought to have been first caused by a fall.

This lad had used Mr. CHASE's truss for about two weeks, never having previously employed any other

* This patient has two sons, both of whom have had inguinal hernia, one of the right and the other of the left side. One of them is cured of his rupture; the other is still under treatment.

instrument. The case was examined a few days ago by Drs. HORNER, HAYS and BRYANT, when the truss was removed, and the patient was permitted to cough, without experiencing any descent of the bowel. The hernia has not been down since the first application of the truss.

The Committee requested Mr. CHASE to remove the truss, which he did. The parts beneath the pad, and for some distance above it, were evidently in a state of considerable irritation. Some scattered ecchymoses were visible, and slight contusion was obvious over several square inches of surface. The temperature of the skin was but little exalted, the swelling was very slight, there was no complaint of pain or pressure, and no febrile reaction. The boy says that the instrument has never given him much pain, but now and then some uncomfotableness, which has induced him to slacken the perineal strap occasionally, so as to alter the bearing of the block; hence the great extent of the irritation. The action of the block has not extended to the external ring, into which the tip of the little finger could be introduced, by reverting a portion of the skin of the scrotum; but the upper two-thirds of the abdominal canal, and the parts around the internal ring are completely involved in the marks of irritation.

The Committee did not think it right to subject the patient again to the danger of coughing, so early in the progress of the treatment, and the case is therefore left sub-judice.

Oct. 13.—This boy appeared before the Committee; truss removed; the ecchymoses have become less apparent; the redness continues; there is a depression of the integuments where the block rests, obviously resulting from some lasting compression in the subcutaneous cellular tissue. Truss re-applied.

Dec. 5.—This case has been constantly under the eye of the Committee from the last date, and the hernia has never descended. Leaving off the truss with impunity for short periods of time, while running about, he still re-applied it, by the special request of his father, when wandering long distances into the country. At the date of the last note, Nov. 24, there was no appearance of tumour; there was slight blueness of the integuments on the affected side, but no other difference between the two sides was observable.

Your Committee have the most favourable anticipations in this case.—*Prel. Rep.*

This case is narrated to Dec. 5, 1835, in the Preliminary Report, (Case II. p. 315.)

April 2, 1836. Examined by the Chairman. The external rings on both sides offer the same resistance to the finger, and appear to resemble each other exactly. The patient feels no sensation of weakness or other symptom of the existence of hernia. He has seldom had recourse to his truss since the 5th of December, 1835; having only employed it when resorting to unusual exertions. Pronounced cured and

ordered to lay aside the instrument entirely. The depression of the integuments beneath the block has entirely disappeared, as has also the redness.

Jan. 11, 1837. The lad continues perfectly well. Has not worn his truss since the last date. He is radically cured.—*Final Rep.*

Common Inguinal Hernia; four months standing; age of the patient about 30 years; congenital enlargement of the lower part of the abdomen; both external abdominal rings preternaturally large and weak; ring on the affected side rendered smaller and firmer by the treatment. Radical cure in thirteen months.

CASE III. *By the Committee. Oct. 7, 1835.*—J—B—, a gentleman well known to many of the members, aged about thirty years, in good general health, has been subject to regular inguinal hernia on the right side for about four months. He cannot account for the accident. Soon after the appearance of the tumour, he requested the opinion of Dr. HORNER, who pronounced upon the character of the disease, and recommended him to the care of Mr. CHASE. The truss, with Hood's common inguinal block, in default of Mr. CHASE's, was first applied on the 22nd of June, and Mr. CHASE's block was substituted as soon as prepared, about two weeks after the commencement of the expulsion of the bowel.

The truss was removed to facilitate the examination. The lower part of the abdomen was rather unusually

prominent, particularly in the space midway between the superior anterior spine of the ilium and the symphysis pubis, on each side, where it swelled obviously outward, like a spherical tumour. This prominence was not produced by adipose matter, or by any other deposit in the subcutaneous cellular tissue, but was plainly the result of a slight enlargement of the abdominal cavity in this region. The skin above the brim of the pelvis was easily depressed into the external ring, by the finger, so that it was altogether unnecessary to revert the skin of the scrotum, in order to facilitate the examination of this outlet.

The external abdominal rings were unusually large. The point of the index finger entered them readily, and to such an extent that it could be made to engage itself beneath the outer edges of the rings, which were thicker and more abruptly defined than usual. The rings were not only broader, but much longer than common; probably from a deficiency of the transverse fibres which should strengthen the connexion of the two columns of the tendon of the external oblique muscle, at the summit of each ring. It is obvious, from these remarks, that the patient had a predisposition to inguinal hernia, probably from his birth.

The external ring on the right side had not been in any degree affected by the pressure of the truss, but the parts covered by the block presented an erythematous blush, which indicated considerable irritation. This irritation extended over nearly the whole length of the abdominal canal, and to a considerable distance

around and above the site of the internal ring. The patient did not complain of any notable inconvenience from the pressure of the block.

The index finger was placed above the external ring, and the patient was caused to make strong and repeated efforts to cough. This caused a sensation of a strong impulsion directly outward from the abdomen, to be felt by the finger; but no tendency to dilatation was observed in the abdominal canal. Precisely the same results followed the experiment when essayed in the same manner on the sound side.

It is somewhat difficult to account for the security of the bowels in the present state of the case. It is true that the course of the spermatic cord through the canal, is rather more distinctly traceable on the right side than on the left, and the tendinous covering of the canal on the same side feels somewhat harder to the touch; but there is no appreciable thickening of this part, nor is there, as yet, the slightest condensation of the skin or subcutaneous cellular tissue. The former, indeed, glides over the surface of the fascia beneath, with rather unusual facility.

Oct. 24.—The patient is still under treatment, but has made several efforts while the truss was removed, without any protrusion of the bowel, and this accident has never occurred since the first application of the truss.—*Prel. Rep.*

This case is drawn up to Oct. 24, 1835, in the Preliminary Report, (Case III. p. 315.)

Feb. 1837. (Day of the month not noted.) The patient omitted the application of the truss, occasionally, from May to July, 1835, and even worked in the harvest field without it. In July he was advised to relinquish it entirely, being pronounced cured. He has not steadily complied with this wish. The external ring on the side affected is now decidedly smaller and more resisting than that on the other side. Its edges are thickened. Ample testing, by vigorous exercise without the truss, has been resorted to. The patient was strongly pressed to relinquish the truss entirely, by the Chairman of the Committee. He is believed to be radically cured, but liable to hernia on the opposite side of the abdomen from slighter causes than usual, owing to the original structure of the abdomen.—*Final Rep.*

Common Inguinal Hernia, from Pertussis; accident of seven years standing; age of patient 9 years; treated by Stagner's or Hood's block for some months, then by Chase's Inguinal Truss; retention by the latter perfect after three days. Radical cure.

CASE IV. *By the Committee.*—A rude boy, aged about 9 years, labours under inguinal hernia on the left side, which was caused by pertussis when he was two years old. The boy suffers very little inconvenience when the hernia is down, and seems to care nothing about it. Ring rather large. Hood's truss,

with a block now in our possession, was applied by him, *March 31, 1835*. It was worn constantly for two months; then occasionally, until the present time. During this period of time, the bowel has descended occasionally, but has been reduced by the patient or the operator, with the utmost facility.

Oct. 10th.—Yesterday the patient was produced before Dr. Ashmead, who found a portion of intestine in the sac. The block of Mr. CHASE, i. e. the common inguinal block, will be applied to day, for the first time. The patient had worn other trusses, none of which prevented the descent.

Oct. 13th.—The Committee examined C— this day. The truss had not prevented the descent. The bowel was returned by Mr. Chase, and the truss re-applied. The boy is extremely careless, and was not himself aware of the descent. He had been exercising himself violently in trundling a hoop, and had neglected an appointment made for the purpose of having his truss properly adjusted.

Dec. 5th.—This patient has been frequently before the Committee, and the retention of the bowel, since the last date, has been perfect. Considerable irritation of the parts beneath the block is still subsisting, and slight efforts, without the truss, do not produce protrusion. The case looks very favourable when the habits of the boy are taken into account. He still wears his truss.
—*Prel. Rep.*

March 29th, 1837.—This case is detailed to Dec. 5, in the Preliminary Report, (Case IV. p. 316.) The patient has been repeatedly before members of the Committee, since the last date, but nothing peculiarly worthy of comment has been observed except what is contained in the following note of his father, which communicates the result. He is believed to be radically cured.

Philadelphia, January 14, 1837.

GENTLEMEN :

I wish to inform you that my son I believe to be quite well of his rupture. He is now gone to — to a boarding-school, and before he left, I examined him carefully, as I have been in the habit of doing while he was under the care of Dr. CHASE. His bowel has never been down, to the best of my knowledge, since the first application of the instrument. He has never complained of pain in the part. He did not take his truss with him, as I did not think it necessary. I do not know the time that he laid aside the truss, but I think it might be in April last.

H—— C——.

DRS. COATES, PARRISH and ASHMEAD.*

* Previous to the first application of the truss, Dr. MUTTER requested that he might witness the case, with its treatment and result. Accordingly, he saw him several times during the treatment; and examined him this day, (*May 30, 1836.*) He pronounced the case "successful." The two sides have nearly a similar appearance, but Dr. MUTTER was of opinion that the parts on the side

Common Inguinal Hernia, of one month's standing, from running violently; age of patient about 35 years. Radical cure in five months.

This case is detailed up to Dec. 5, 1835, in the Preliminary Report, (Case V. p. 317.)

CASE V. *By the Committee.* Oct. 1835.—Mr. —, a gentleman of high respectability, well known to one of the members of the Committee, was examined by the Committee on this day. Age about 35 years.

The patient suddenly became subject to hernia, in running after an omnibus, between three and four months ago. He has worn CHASE'S truss, with the common inguinal block, for about three months uninterruptedly. The bowel has never descended since that time.

Condition of the parts.—There is a well-defined redness of the integuments, at the part covered by the block, but there is no trace of condensation in the subcutaneous cellular tissue. The external ring on the affected side seems to be a very little contracted and firmer, for which fact it is difficult to account, as the block does not act at this point. It may possibly result from a congenital peculiarity. The sliding of the skin over the abdominal canal, is not restricted.

where the hernia had existed, were a little thickened. The patient had some enlargement of the spermatic cord, which might, in part, account for this thickening. It still continues, and was sufficiently obvious when the truss was first applied.

Tests of radical cure.—The patient was examined by Dr. Hartshorne, a few days ago. His truss was removed, and he was requested to cough, which he did, as he states, repeatedly and violently, while the Doctor made every necessary examination of the parts. Dr. H. then stated, that “he saw no marks of any thing wrong about the case.” Slight efforts to cough were made before the Committee. There was evident propulsion of the integuments immediately over the internal ring, but they were not appreciably greater on the diseased than on the sound side.

The probabilities of radical cure, in this case, are very strong; but the Committee, not wishing to hasten Mr. CHASE, in subjecting the case to any farther test, by their advice, simply requested to see the patient occasionally, after the final removal of the truss. Truss continued.

December 5.—There has never been any return of the protrusion since the last date. The patient has attended to his business, without a truss, for some weeks past. The probability of radical cure in this case is *very strong*.—*Prel. Rep.*

Feb. 1837. (*Day of the month not noted.*) This patient states that soon after the last note of the Committee, he was alarmed by the appearance of what he mistook for the return of hernia, but on applying to Dr. CHASE, he was convinced of his mistake. The latter gentleman in his treatise already quoted, mentions that sometime after the 5th of Dec. 1835, he

consulted him several times under this impression.— (p. 148.) He is decidedly a hypochondriac. At his own instance, the truss was re-applied though deemed unnecessary. Sometime afterwards his surgeon represents, that he had an accumulation of serum in the sac; a circumstance which, as Dr. CHASE justly remarks, is not uncommon during the treatment of hernia, even when accurately retained, and which need not occasion alarm. This serum retired into the abdomen on pressure, proving that the neck of the sac was not, at that time, obliterated.

No signs of the sac are now traceable, and no remains of the effusion have been visible for a long time. There appears no reason to believe that the latter had an abdominal origin.

The patient occasionally relinquishes the truss for a time, but labours under nervous timidity with regard to a relapse. The Chairman of the Committee, by whom the last examination was made, strongly urged the entire abandonment of the instrument, on the plea that the unnatural and unnecessary support might eventually produce weakness by removing the necessity of the functional exercise of the part; but it is not probable that the patient will permanently adhere to the advice, as the truss gives him no inconvenience. He is believed to be radically cured.

The apparent anomaly of the preternatural diminution and firmness of the ring, noticed in the Preliminary Report, which could not be explained at that time,

has been proved to fall within the range of a general law, by the subsequent observations of the Committee. It is now still more remarkable than when first noticed.

Common Inguinal Hernia, of many years standing; age of the patient supposed to be about 35 years; cause unknown; imperfect retention by the best English trusses; also by Stagner's or Hood's block; perfect retention by Chase's Inguinal Truss.

CASE VI. *By the Committee.*—Mr. P—, a highly intelligent and athletic English gentleman, has laboured under inguinal hernia on the left side, for a number of years. The cause of the accident is unknown to the Committee. He had worn a variety of the most lauded trusses before applying to Dr. Hood. No truss had ever retained the hernia effectively. He applied Dr. Hood's truss under his direction, and continued it for more than four months. This truss produced great pain, probably from pressure on the brim of the pelvis, and it did not effectually prevent the descent of the bowel.

Oct. 13th, 1835.—Examined by the Committee. This patient is a remarkable example of muscular power, and his abdominal muscles are exceedingly strong. The abdomen is of an unusually round form, and there is a thick layer of adeps over the lower part of the abdomen, which is only partially absorbed under the pressure of the pad, although considerable irritation has been produced.

The external abdominal ring cannot be distinctly felt, in consequence of the amount of adipose matter in the subcutaneous cellular tissue. This is a very unfavourable case for the action of trusses; yet, although no instrument previously employed had been able to retain the bowel under ordinary exertions, the patient has had no protrusion since the first application of Mr. CHASE'S truss, which has been steadily worn since May 20, 1835, and he has led, for a considerable part of this time, the life of a hunter, leaping fences, riding desperately, and following the favourite pursuits of an athlete. He is enchanted with the instrument, and protests that he is generally insensible of its pressure.

Dec. 5th.—This patient has not appeared again before the Committee, probably because much of his time is occupied in field sports.—*Prel. Rep.*

The Committee lost sight of this case soon after the last date in the Preliminary Report, (p. 317.) The tests of the retentive power of the instrument were violent, but the question of radical cure could not be solved, as the gentleman left Philadelphia while under treatment. Dr. CHASE states that when last seen by him, in March, 1836, the patient was not wearing the truss and had not experienced any protrusion.*

* When seen in March last, this patient was not wearing his truss. No return of the hernia took place, and soon afterwards he left the city for New Orleans, without applying for further advice. He is now in that city, and is believed to be radically cured.

H. C.

Ventro-Inguinal Hernia, of several years standing; age of patient 33 years; relief, and prospect of cure from Chase's Common Inguinal Truss.

CASE VII. *By Dr. I. Parrish. Ventro-Inguinal Hernia.* — — —, aged about 33 years, a sugar-refiner, accustomed to lifting heavy weights, has had a rupture for seven years. The first descent occurred in the act of lifting a heavy barrel. When he ascertained the nature of the injury, he bought a truss of a druggist, which he wore for about a year; this succeeded in retaining the parts, and on removing it, he found no protrusion took place. At the end of a year, thinking that he was cured, he threw aside the instrument, and continued his laborious occupation without it. In about two months, while lifting a heavy weight, he had another descent. He had recourse to trusses again, but never could procure one which he liked as well as the first. He frequently experienced difficulty in keeping up the bowel. The hernia continued in this situation until May 13, 1835, when he applied CHASE's truss.

At this time the surgeon thought that the rings were unusually large, and near to each other. The health of the patient was much impaired; he had nausea and eructations, particularly after eating; constipation of the bowels; general debility, &c.

He states that he experienced considerable pain and soreness for some time after the first application of the instrument. This subsided, and lately the truss

has been very easy. He has been in the practice of removing it at bed time, for some weeks.

1st Mo. 24th. Saw him in the evening; he had removed the instrument about two hours before, and had walked some squares; he has removed it for a few hours once before, without a descent. There has been no appearance of the tumour. There has been a slight increase in the natural hardness of the parts about the rings. The passage of the finger through the abdominal rings appears to be obstructed.

He states that his general health has been much improved since applying the instrument.—*Prel. Rep.*

This patient is the subject of the seventh case of the Preliminary Report. He has disappeared, and the Committee know nothing of his history after January 24th, 1836. His condition then gave promise of cure. The case has not been seen since the invention of the Ventro-Inguinal Truss.—*Final Rep.*

CASE VIII.—*Of the Preliminary Report; Femoral Hernia, from notes by Mr. Chase, examined and approved by Dr. B. H. Coates.*—Oct. 13th. I visited this day, in company with Dr. B. H. Coates, Miss M. S., aged about 28 years, and found her labouring under a femoral hernia on the left side. The protrusion was

* This patient has not presented himself for further advice.

H. C.

about as large as a walnut. Cause unknown. The accident occurred about two years ago. The patient has suffered several times from obstruction of the bowel; she has been obliged to confine herself repeatedly to her bed, and has suffered much pain and great inconvenience from the disease.

15th.—On examination, we found the protrusion of the bowel greater than it was on the 13th. By steady taxis, the bowel was reduced in four or five minutes, and the truss with the femoral block was applied in the presence of Dr. COATES.

16th.—Visited the patient with Dr. C. We found the patient comfortable; she complained of a little soreness.

19th.—Up to this period, the patient has laid her truss aside at night. She found the tumour slightly apparent. It was much smaller in the morning, nor did it give her pain on its appearance, as it had done previous to the application of the truss. Directed her to wear the instrument day and night.

21st.—We again visited the patient, and found her attending to domestic affairs. The bowel had not appeared since the last visit.

26th.—The patient has attended church. She walked much on Monday and to-day. She complained of soreness beneath the block.

30th.—The bowel has not passed down; the soreness has in a great measure subsided.

Nov. 10th.—The truss is now worn with ease.

30th.—The truss is still worn with ease. It is thrown off at night.—*Prel. Rep.*

This patient is said to have had no return of the protrusion, but she is represented as still using the truss. The Committee have had no opportunity of examining this case at any time, and are not acquainted with its history since November 30, 1835.*—*Final Rep.*

CASE IX. *of the Preliminary Report; Congenital Hernia.* By Dr. Ashmead.—Master Ruth, aged 6 years, with a robust constitution, has congenital inguinal hernia of the right side. It is large, and passes into the scrotum. The external ring on both sides large and relaxed. The patient having tried two or three different forms of trusses, directed by physicians, and these failing to retain the bowel, for a single day, and having suffered severely from them, the mother then despairing of a cure or relief, permitted the lad to go without any support of the parts: but the boy having suffered symptoms of strangulation several times, I was called to see

* This patient still continues the instrument by my advice. The hernia had given her unusual trouble; she is past the meridian of life. She has removed the truss twice in my presence without a protrusion of the bowel, but as it is worn with ease, giving her great comfort and safety, I have recommended its continuance.—H. C.

him, and directed Mr. CHASE's truss to be applied. At the time the bowel was readily restored, but, on removing the thumb from the ring, while the patient was in the erect position, without any effort being made, it immediately fell down to as great an extent as before. The truss was applied by Mr. CHASE 16th of October, 1835, and it has completely and uniformly retained the bowel within the abdomen, so that it has not once since descended; and now, December 4th, the bowel does not descend, even when the truss is removed, and the patient stands erect and still; though so short a time has elapsed since its adjustment. I thought it wrong to make him cough or exert his abdominal muscles, to show how far it would be retained. The sac is thickened and remains down. Slight inconvenience was at first felt from the pressure of the block, though the spring is not stronger than those in general use; (perhaps not so strong.) It produced inflammation of the skin beneath it, which was moderated by several folds of linen under the pad. Now no inconvenience is felt, and it has ceased to irritate the parts. In this case the block is placed over the external ring and lower half of the abdominal canal. No evidences of thickening of tissues or adherence of parts about the external rings as yet exist. The case is still under treatment and observation; and its future result will be communicated when sufficient time has elapsed to judge of its final success.*—*Prel. Rep.*

* *March 17th, 1836.*—I examined this case in the presence of the young lad's mother, who informed me that she had, on two former occasions, removed the instrument for short periods. The truss was again removed; the parts about the rupture appeared

This case has not been heard from since December 4th, 1835.—*Final Rep.*

Femoral Hernia, of two years' duration; age of patient 30 years; Hood's Femoral Block not permanently tolerated; other trusses producing imperfect retention; apparently perfect retention by Chase's Femoral Truss, with the Ovoidal Block; perfect retention by the new Femoral Truss; radical cure.

CASE X. *By Dr. Ashmead.*—Aged about 30 years; good constitution, sedentary habits, occasionally uses violent exercise, small femoral hernia of the left side for two years.

For this affection the patient has tried a variety of trusses, with strong springs and soft large pads, all of which failed in retaining the protruded intestine; so that he despaired of ever being cured. In June last, Mr. CHASE applied his truss, which retained the bowel constantly and perfectly, and gave much less pain than the others had done. He says he suffered very little inconvenience from it; indeed it now sits so easily, that he hardly knows when it is on. It is now three

more thickened than usual. I applied a second truss, which covered the site of the internal ring more accurately than the first had done.

July 24th.—Examined the case; no alteration in the appearance of the parts; patient has left off his truss occasionally.

August 1st, 1837.—I have not seen this patient since July 24th, 1836, he having never called on me, and I have been unable to trace him in the city.

H. C.

months since its first application; he only wears it when using violent exercise, as in gunning. Last week, while gunning, he forgot to apply it, he jumped over fences fearlessly, without any descent being produced. Coughing appears to give to the finger placed over the hernial orifice a very slight impulse. The skin over this spot bears marks of pressure. It is discoloured, hard, and drawn backward, and slightly upward, as if the soft parts beneath had been absorbed, or as if they were adhering closely to the parts beneath; and this appearance presents a striking contrast to the corresponding parts on the opposite side.—*Prel. Rep.*

This patient is the subject of a note by Dr. ASHMEAD in the Preliminary Report, q. v. (Case X. p. 319.)

March 29th, 1837.—The truss has been occasionally worn, in this case, up to the present time, but only for a few hours at a time, during unusual exertions. The new femoral block of CHASE was substituted for the ovoidal block soon after the invention of the former. This occasional use has prevented the return of the subcutaneous depositions; and the patient states that the block “embeds itself so that the shoulder, or projection, dips underneath a sharp edge of something which I suppose is Poupart’s ligament, and, whenever it is applied, rises up under it.” This is his own phrase. The depressed skin now plays freely over the parts beneath, so that no adhesion exists between the integuments and the hernial orifice. The Committee have enjoyed no recent opportunity of witnessing the

position of the truss. Neither the old nor the new Femoral Trusses have given any material inconvenience.

The patient assures us that the action of Hood's Femoral Block, which had been previously employed, though when in its intended position it apparently retained the hernia, "could not be borne for any length of time, and that, as soon as it was moved, the bowel descended." It produced great inflammation, and a sore over Poupart's ligament, which confined him for two weeks to his bed. The orifice in this case must have been large when the treatment by wooden blocks commenced, as the bowel then slipped down and was returned by the fingers with the utmost facility. The descent always took place on walking across the floor of a room.

Since the time of the Preliminary Report, he has tested the cure by pursuing his usual avocations, swimming and other severe exercises, for weeks together, without any application of the truss. His occasional use of the instrument is made entirely at his own suggestion. He is considered radically cured; but, whether the result has been obtained solely by the old, or partly by the new Femoral Truss of Dr. CHASE, the Committee will not attempt to determine. Reference to the Preliminary Report will show that the cure was far advanced while the ovoidal block was in use.

The Committee place much confidence in the repre-

sentations of the patient himself in this case, as he is a gentleman of education and intelligence.—*Final Rep.*

Large Ventro-Inguinal Hernia, of many years' standing; producing ill health and disability; age of patient 60 years; complete relief and perfect retention by Chase's Ventro-Inguinal Truss.

CASE XI.—*Note I.—By the Committee.*—Major W. a gentleman of about 60 years of age; has had for many years a large, direct or ventro-inguiual hernia, with an orifice of very considerable size. The hernia has given great distress, disabling him from business, and sometimes confining him to his bed. The patient, before applying to Mr. CHASE, had worn a variety of trusses “with little or no benefit,” to use his own language. “For upwards of twelve weeks past, it (the hernia,) has been uniformly retained by Mr. CHASE’s inguiual pad.” He can now walk the room with the truss off, and without producing any appearance of the hernia; which could have been scarcely possible, even by accident, before the application of this block. With the instrument applied, he is able to “walk a considerable distance with comparative ease and firmness.” Neither the patient nor his surgeon have relinquished their hope of a radical cure in this very unpromising case, and the Committee are unwilling at present, to express any opinion on the probability of such an event.—*Prel. Rep.*

This is the case marked Note I., in the Preliminary Report. The estimable and companionable old

gentleman who is the subject of it, has been seen several times by the Committee during the year 1836. He has been restored from a condition which rendered life almost a burden, to one of high comfort and enjoyment. The Preliminary Report displays the effect of the ovoidal block in securing *the permanent*, but probably, *not the accurate*, retention of the bowel, for he could only venture upon very moderate exercise with safety, and continued liable to much abdominal uneasiness at times, until the ventro-inguinal block was brought to perfection, and substituted for the previously applied and worse adapted one. Since that time he has been restored to perfect health, walks long distances without suffering, has passed a season in his favourite amusement of trout fishing among the mountains, and wears his truss with scarce a perception of its presence. During occasional relinquishment of the instrument, which has now and then continued for some hours, no signs of protrusion have occurred. No accurate examination of the ring has been made for a long time. It is deemed altogether improper to test, in this case, the natural powers of retention, and the instrument will be worn during life.—*Final Rep.*

Besides the cases just detailed, your Committee, or particular members of it, have been presented with several others, at different times, which were illustrative of particular points of interest with regard to the action of the several blocks, but which did not appear to require a regular report during the present session. Some of them are made the subject of the following notes.—*Prel. Rep.*

Common Inguinal Hernia; Stagner's or Hood's Block employed; deep linear depression of the integuments; absorption of a portion of the tendon of the external oblique muscle; perfect retention by Chase's Ventr-Inguinal Truss; improved condition of tendon; case still pending.

CASE XII.—*Note IV.*—A man of middle age, with inguinal hernia, was examined by the Chairman, about the end of October last. He had one of Hood's original blocks in action at the time, and stated that he had worn it for a considerable period. The direction of the shoulder of the block was nearly perpendicular, and, in the opinion of the examiner, it was too near the mesial line of the body to act upon the upper end of the inguinal canal. It is not recollected by whom the instrument was applied, but according to the statement of the patient, it had always retained the bowel. It should be borne in mind, however, that it is difficult to detect a small protrusion of intestine, confined to the upper end of the canal. The truss was removed by Mr. CHASE's order, the patient being then about placing himself under his care; and so great was the absorption of the subcutaneous matter, and the integuments, that the skin was brought into apparent contact with the tendons beneath, and it is the opinion of the examiner that, had the pressure been injudiciously continued, the integrity of the tendons themselves would have been threatened. The depression thus occasioned was greatest at the prominent extremity of the shoulder of the block, and continued—gradually becoming less marked—for about two-thirds of its length upwards. The

depression was very narrow, and the parts about the most prominent line of the block were alone imbedded in it. Around the edges of the block there was some swelling, apparently produced by a deposit of some kind in the subcutaneous cellular tissue. The patient has not since been seen. This note is drawn out from memory.—*Prel. Rep.*

The commencement of the history of this case will be found in Note IV. of the Preliminary Report, (p. 321,) and was written in December, 1835.

March 5th, 1837.—The patient was examined by the Chairman of the Committee this day. Dr. CHASE states that the patient continued to wear the truss with Stagner's or Hood's Inguinal Block, for three or four weeks after the examination in October, 1835, in consequence of neglecting to call on his surgeon agreeably to appointment. This unfortunately led to a more rapid alteration of the part of the tendon pressed upon than was calculated on, either by the Committee or his surgeon. The new Vento-inguinal truss was applied as soon as completed. The present condition of the parts about the orifice is as follows:

The integuments are still considerably depressed in consequence of the subcutaneous absorption, but the block applies itself equally over a wide space, without bearing too forcibly on the tendons. The retention has been perfect from the first. The skin is not rendered preternaturally thin. It is slightly red from the debility of the capillaries produced by pressure, but

there are no signs of irritation about the part. The skin slides over the parts beneath, with the greatest facility, proving the absence of adhesions.

The usual resistance to the finger offered by the abdominal parietes is wanting over a space of about two fingers breadth, running perpendicularly upward from the edge of the os pubis at the site of the external abdominal ring. The existence of the tendon of the external oblique muscle is obscure throughout this space, and is not perceptible at all toward the lower part of the space. On reverting the skin of the scrotum before the finger, into the external ring, the internal column is found well defined; the external column is indistinct. The tendon can be felt in a healthy condition far to the right, but appears gradually reduced to mere cellular membrane as it approximates to the ring, the upper margin of which cannot be determined by the sense of touch. The spermatic cord is felt throughout nearly the whole length of the abdominal canal, with such extreme distinctness that it might be supposed to be covered only by a thin layer of free cellular membrane. Dr. CHASE thinks that the absorption of the tendon was considerably more extensive than at present, at the time of the removal of the instrument formerly in use, and that the restitution of the natural structure is now making slow progress. On this point the Committee have no knowledge from personal observation.*—*Final Rep.*

* This gentleman continues to wear my Ventre-inguinal truss; the tendon is gradually improving, and will, I think, eventually

CASE XIII.—*Note V.*—A patient, with inguinal hernia, was recently presented before the Chairman. He stated that he had worn a truss with one of the wooden blocks, until it had produced a degree of absorption described as equal in extent to that mentioned in the preceding note. He had then slackened the instrument, and finally relinquished its use for some time. At the time of the examination, the parts which had been compressed, had resumed their usual level and aspect. The adipose matter had been re-deposited in the subcutaneous cellular tissue, and no obvious induration about the canal or the rings could be detected.

This note is introduced to show that adhesions or

regain its normal firmness. The instrument is worn with ease, giving perfect security against any protrusion of the bowel. Under these circumstances I shall recommend that the instrument be worn for some years, perhaps during life. He is a muscular, powerful man.

The above case fully illustrates the danger which must inevitably follow the employment of instruments armed with Mr. Stagner's and Dr. Hood's blocks. I have met with several patients wearing the above-mentioned blocks, some of whom, aware of their situation, have visited this city from the South and West, in order to obtain relief. The instruments taken from these patients, some of which were applied by the inventors themselves, are now in my possession. I have also other instruments of the first class, Price's, Semple's, etc., which I removed from patients labouring under hernia, accompanied by a partial destruction of the tendons, from the action of those instruments. Semple's truss (so called) consists merely of a leaden conoidic block attached to the late Dr. Hull's spring. This instrument is capable of doing great injury to the parts on which it presses, in a very short space of time.

H. C.

indurations are not the invariable result of the action of solid pads. The Committee have seen, as yet, no conclusive evidence that they are ever so produced. This note is also drawn up from memory.—*Prel. Rep.*

This case has not been again presented to the Committee. The patient was thought to be radically cured when the note was written.—*Final Rep.*

Note VI. of the Preliminary Report, (p. 321.)—Within a few days, the Chairman of the Committee was called in consultation with a medical gentleman from the country, to see a lady labouring under a small hernia, believed to be femoral, but its precise character could not be positively determined, owing to the sex and *embonpoint* of the subject. The edge of Poupert's ligament could not be distinctly felt, and the case may possibly prove one of direct ventro-inguinal hernia. When reduced, the rupture always returned, if the patient rose from her couch. CHASE's truss, with a small femoral block, was applied by the Chairman of the Committee, and during various efforts to test the security of the parts, the retention appeared perfect. It is very improbable that any soft pad of similar dimensions could have produced such security. The patient left the city almost immediately, and her physician has not made any further communication on the subject.—*Prel. Rep.*

The patient mentioned in Note II. (p. 320,) of that paper, has been much deranged, and his insanity has

interfered with the treatment. He is no longer under the observation of the Committee.—*Final Rep.*

NOTE II.—*From notes by Dr. Gerhard, and the Committee.*—Mr. P——, at the Pennsylvania Hospital, who had worn Hood's truss with an inguinal block for some time, and who is said to have been considered radically cured by Drs. Hood and BODDER, had a recurrence of the rupture after the close of their treatment. In October last, while using Mr. CHASE's truss, after the relapse, he was presented before the Committee by this gentleman, to rebut the charge that his blocks were incapable of producing sufficient irritation to secure adhesion in the parts beneath; and also to show that the most severe inflammation which could be produced by the instrument without gross mismanagement, was not productive of danger to the peritoneum. At the time of the examination, all the parts covered by the block were more or less excoriated, and in a high state of inflammation, so that one of the Committee thought there was danger of the formation of an abscess in the part. The patient did not complain of any abdominal symptoms, nor of very great pain from the pressure. The force of the instrument was afterwards diminished, and the inflammation soon subsided. The Committee has seen several other instances of excoriation from the action of different blocks, but none in which serious inconvenience was produced by this cause.—*Prel. Rep.*

The cases described in Note III. (p. 320,) and Note

VI. (p. 321,) have not been heard from since those notes were written.

The foregoing details complete the history of all that is important in relation to the cases which were made the subject of comment in the Preliminary Report.—*Final Rep.*

Common Inguinal Hernia, of about one year's standing; age of patient 27 years; radical cure in seven months.

CASE XIV.* Mrs. —, aged 27. Constitution vigorous. Patient arrived from Ireland in 1834. She has been accustomed to much exercise. While preparing for her voyage she was suddenly seized with pain in the right inguinal region, and a small tumour appeared there; but the complaint received no attention until October 1st, 1835, when, having suffered several times from partial strangulation of the bowel, she consulted Dr. ISAAC PARRISH, by whom she was referred to my care.

October 14th.—Saw the patient for the first time. Tumour about as large as a hen's egg; painful to the touch. She had walked several squares in the morning; states, that after such exercise she is accustomed to faint, and is generally compelled to lie in bed two or three hours, to recover herself.

* In the following cases, where reference is made to "Chase on the Radical Cure of Hernia," those cases are embodied with others of the Final Report.

20th.—Applied the common Inguinal truss, in the presence of PROF. HORNER, and Dr. CRITTENDEN of Cincinnati, who kindly accompanied me. Dr. HORNER reduced the bowel. The instrument being applied, the patient rose from the bed. The retentive power and adaptation of the truss were fully tested and approved.

21st.—Called, and found the patient attending to her domestic concerns. The truss gave no pain, and occasioned but very slight soreness. Patient says she feels comfortable.

22nd.—Considerable irritation beneath the block.

24th.—Patient complains of soreness—did her family washing this day.

26th.—Examined the parts; found them considerably inflamed, particularly above the pubic bone. The patient does not complain of the pressure; has been to market to-day.

31st.—Removed the block and substituted one rather larger.

November 10th.—Instrument worn with ease. The retention has been perfect since the first application.

March 4th, 1836.—Instrument discontinued.

30th.—Examined the patient; no perceptible differ-

ence between the two sides. She is now, by calculation, in the seventh month of pregnancy.

April 11th.—Confined to her bed with false labour pains.

19th.—She has had an extensive abscess in the left mammary gland, which I laid open this day; Dr. R. COATES in consultation.

May 4th.—At 2 o'clock, A. M., the patient was taken in labour; the pains were severe. After the rupture of the membranes the labour was very rapid. It terminated at 5 o'clock, P. M.

5th.—The patient had severe after-pains during the night.

11th.—Visited the patient in company with Dr. SMART, of Maine. Found her going about as usual. Dr. SMART pronounced her free from rupture.

July 11th.—The patient continues perfectly well.—*Chase on Hernia, p. 163, 164.*

This patient, a female, was ruptured on the right side, during unusual exertion while preparing for a voyage from Ireland to this country in 1834. No surgical advice was taken until October 1835, when she was directed to the care of Dr. CHASE by Dr. ISAAC PARRISH.

April 19th, 1836.—Patient examined this day by the Chairman. The Inguinal truss of Dr. CHASE was applied on the 20th of October, 1835. The woman states that she suffered some pain, but not a great deal, from the action of the first truss. Another, with a block and spring more suitable to the formation of the individual's pelvis, was substituted on the 31st. The irritation then subsided, and the truss produced no more complaint. The retention was complete, from the first application on the 20th of October. The woman being far advanced in pregnancy, the truss was laid aside on the fourth of last month. No protrusion has taken place. She has a very large abscess of the left breast, which was opened by the lancet this morning.

May 16th.—Seen by Drs. CHASE and R. COATES. Patient was delivered with rapidity on the 4th instant, and suffered severely with after-pains. It is thought that this test of the security of the retentive power of the abdominal tendons and fascia is sufficient to warrant complete reliance upon it, and the patient is directed not to resume her truss on leaving her chamber.

July 11th.—Again visited by the Chairman. She is pursuing her usual avocations, and is pronounced radically cured.

March 30th, 1837.—This patient continues perfectly well.* On reviewing the notes, the Committee think it

* Soon after, July 11th, 1836, this patient moved to a distant part of the city. I saw her but seldom until June 20th, 1837, when I

right to mention that the absence of protrusion during the last months of pregnancy, and even during labour, is a fortunate and not unfrequent result of the position of the gravid uterus, which displaces the intestines from their usual position. It was therefore the absence of protrusion during continued and severe after-pains which alone induced the conclusion that the cure might then be safely considered radical. These remarks are intended as a caution to the inexperienced, who might naturally conclude that the absence of all symptoms of hernia in the inguinal or femoral region, during the latter months of gestation and the period of labour, was a sufficient proof of the non-existence of the disease. In umbilical hernia, continued retention during the latter moments of labour would indeed be a strong argument in favour of the radical cure.*—*Final Rep.*

was summoned in the night to visit her. I found her under the care of two physicians, and learned that she had been gradually declining for several months past. I saw her daily for a short time; she was not wearing the truss. I examined the parts carefully at several different times, but I could detect nothing unusual in the state of them. She assured me that no return of the rupture had ever taken place. She died on the 27th of June. Every effort was made to gain an autopsy, but without effect.

* *August 9th, 1837.*—Mrs. —, aged about 30 years, of a robust constitution, at the suggestion of Drs. I. PARRISH and GALLAHER called at my office to consult me relative to a femoral hernia under which she was then labouring.

She met with this accident ten years ago in jumping from a cherry-tree when she was *enceinte*. She has suffered much from the old trusses, and had entirely abandoned them before I saw her. She is now pregnant with her fourth child; her hernial tumour is as large as a billiard-ball, and very painful. She is extremely anxious

Common Inguinal Hernia, of seven years' standing; age of patient 12 years; radical cure in seven months.

CASE XV.—Master E., aged 12 years: constitution vigorous; frame slender: accident occurred several years ago: attributed by the parents to a fall from a fruit tree; but the patient states that the tumour first appeared during a ride on horseback soon after the fall.

November 27th.—Applied the common inguinal truss.

28th.—Truss worn during the night. Patient slept well.

December 4th.—Parts beneath the block slightly reddened.

April 1st.—Examined the case: no perceptible difference between the two sides: the retention perfect from the first. He has indulged in his usual sports without restraint, during the frost and snow of last winter. States, that since the four or five first days

to be relieved, for she says, “I suffer greatly in consequence of the rupture, when I am confined, for weeks before, and for some time after. The pain produced by the rupture is far greater than what I experience at the birth of my children.” She also adds that the tumour always protrudes more as the time of her confinement approaches; and when in labour it increases very much in size, and is extremely painful.

Thus it will be observed, that though the general rule laid down by the Committee be correct, the protrusion sometimes does occur during the latter months of pregnancy, and must be guarded against accordingly.

H. C.

of the treatment, he has been scarcely conscious of the presence of the instrument.

June 22nd.—Examined in the presence of Dr. R. CoATES. Both sides present, in all respects, the same appearance. Patient has frequently laid aside his truss for short intervals: has bathed in the Delaware, and has used other exercises without it. Dr. CoATES advised the discontinuance of the truss, believing the case to be radically cured.—*Op. cit.*

Dec. 4th, 1835.—CHASE's Inguinal truss was applied on the 27th of November last. Some redness from irritation is visible when the truss is removed, but no inconvenience is felt from it. The retention has been constant and perfect from the first.

April 1st.—There has been no protrusion. No difference between the size and resistance of the two rings can be distinguished on reverting the skin of the scrotum before the finger. Some redness continues, but the patient insists that he is seldom aware of the presence of the instrument. There has been much less subcutaneous absorption than usual in this case.

June 22nd.—Examined by the Chairman. The patient has often removed his truss for some hours at a time; he has taken walks, and has gone on swimming excursions repeatedly without it.

The opposite sides of the abdomen now appear perfectly similar in all respects. The redness and de-

pression beneath the block have both disappeared. The case is believed by the Chairman to be radically cured, and he strongly advises the discontinuance of the truss.

March 31st, 1837.—This little patient has been repeatedly seen by members of the Committee since the last date, and was critically examined by the Chairman in February. He wore the truss occasionally for some weeks after the 22nd of July, 1836. He is now perfectly well, vigorous and active.—*Final Rep.*

Ventro-Inguinal Hernia, of six years' standing; age of patient 10 years; cure radical.

CASE XVI.—Master W—, aged 10 years; accident occurred six years ago; cause unknown. This young gentleman's father had spared no expense in obtaining for him the best instruments, none of which permanently retained the hernia.

December 13th, 1835.—Ventre-inguinal truss applied.

16th.—Patient has suffered no inconvenience from the truss: retention perfect.

January, 1836.—Skin inflamed beneath the block: patient complained of some soreness when the instrument was removed for examination.

April 2nd.—Instrument removed in the presence of Dr. JOHNSTON, one of the resident physicians of the

Blockley Hospital. A distinct depression of the skin was seen on the parts covered by the block, and it included the whole route of the inguinal canal and extended to the edge of the pubis. The bowel had never been down since the commencement of the treatment.

June 20th.—Examined the case this day: the abdominal rings on both sides appear alike: there is still some slight depression of the parts pressed by the block: he has bathed frequently in the Delaware without his truss: feels no inconvenience from his former rupture. Case considered as radically cured; but the patient still generally wears his truss at his father's request.

This patient has been under the eye of Dr. KLAPP from the commencement.—*Op. cit.*

Feb. 26th, 1837.—This case is fully detailed in Dr. CHASE'S Treatise, (p. 166, Case XX. q. v.) but has only been seen by the Chairman of the Committee on the present occasion. The Ventro-inginal truss was applied December 13th, 1835. The patient testifies that there have been no signs of protrusion at any time since that day. Dr. CHASE considered the patient radically cured June 20th, 1836, six months after the commencement of the treatment, as prior to that time, by the patient's own showing, he had repeatedly left off the instrument during bathing excursions; but the boy's father compelled him to continue the use of the truss. He has more recently laid it aside on many

occasions for several days together; has cast it off entirely for the last two weeks, and has been enjoying himself in skating on three different days, without any protrusion whatever. The external ring is about the natural size, and there remain no marks of a truss ever having been used in the case, except in the persistence of a slight subcutaneous puffiness in the parts beneath the block. The patient is now radically cured, whatever may have been his condition on the 20th of June, 1836.—*Final Rep.*

Direct Inguinal Hernia, from coughing in an attack of asthma; case of four years' standing; age of patient 45 years; radical cure of the hernia; persistence of the asthma.

CASE XVII. — — —, stone-cutter, age 45 years, a strong man, accustomed to much exertion; but having had a fracture of the patella, he has recently avoided lifting heavy weights by the direction of Dr. HARTSHORNE. This patient is asthmatic; cause, coughing in an attack of asthma; accident occurred four years ago; tumour large; patient had worn one of the old fashioned trusses, (see fig. 3, p. 45, Chase on Hernia;) but the bowel frequently escaped from beneath the pad. He consulted Dr. TURNPENNY, by whom he was referred to my care.

October 28th, 1835.—Examined the case for the first time. The external ring was unusually large, admitting two fingers; Ventro-inginal truss applied.

30th.—Since the application, the bowel made a partial escape during a coughing-fit, but was returned by the patient himself—Substituted another truss with a stronger spring.

November 5th.—Yesterday evening the patient was seized with a paroxysm of coughing, and a slight escape of the bowel took place. The pressure of the block was again increased by bending the neck of the spring, and its margin was also more nicely adapted to the edge of the pubic bone.

November 12th.—No further descent of the bowel has taken place.

Here the regular entry of the notes ceased, because nothing interesting occurred.

July 11th, 1836.—The patient examined in the presence of Dr. R. COATES. The retention has been perfect since the last date. The patient has been in the habit of taking off the truss at night, and re-applying it before rising in the morning. About four weeks ago he laid aside the truss without orders, and continued his usual avocations for ten days. I re-applied it, and ordered its continuance; but the patient again threw it off at the end of four days, and has not since employed it. He has attended to all the duties of a master stone-cutter, without the slightest inconvenience during the whole period. The ring is contracted to the natural size, rather unusually well defined, but seems somewhat less resisting than usual at

its centre. Advised the patient to continue the truss, as a precautionary measure, for a few months longer. —*Op. cit.* p. 167.

The patient was first seen by the Chairman of the Committee, July 10th, 1836. He then stated that he had laboured under hernia for nearly five years. The orifice is stated to have been large and direct. It originally admitted two fingers. The old common truss had been employed, but the bowel frequently descended beneath the pad. Dr. CHASE first saw him October 28th, 1835. Hood's Parabolic Block, with CHASE'S Truss-spring, was applied. The retention was perfect till the 30th of October, when an attack of asthma occasioned a protrusion. A truss with a firmer spring was employed, and the retention continued constant during the whole course of the treatment. After the introduction of CHASE'S new Ventro-Inguinal truss, it was applied in this case, but the Committee possess no note of the date of this substitution.

July 11th, 1836.—Examined by the Chairman. The truss now in use (CHASE'S Ventro-inguiual) has never given any inconvenience—all those previously employed had done so. The patient performs all his duties as a master-mason with composure and ease—a former fracture of the patella leading him to avoid very heavy lifting, by the advice of Dr. HARTSHORNE. In the early part of last month he left off his truss for ten days, and pursued his business without any accident; for which he was censured, and directed to continue the application of the instrument. The edges of the ring

are now well marked and somewhat thickened, but are very little less contracted than on the sound side.

April 1st, 1837. Some two months ago this patient was seen by the Chairman. He continued to wear his truss occasionally when performing heavy lifting, and during attacks of asthma. Since that time he has been lost sight of by the Committee. No signs of protrusion have ever appeared during the considerable periods for which the truss has been relinquished, although no particular care has been used to avoid exertion in the pursuit of his usual avocations in the marble yard.—*Final Rep.*

Direct Inguinal Hernia, of four weeks' standing, caused by an accident in riding on horseback; age of patient 30 years; radical cure in seven months.

CASE XVIII.—Mr. B——, aged 30 years; accident caused from the stumbling of his horse; case of four weeks' standing.

This gentleman had long been a distinguished teacher in the city, but had been compelled to relinquish sedentary, for more active pursuits. He was recommended to my care by Dr. EDWIN A. ATLEE. The bowel had penetrated the canal about midway between the two rings.

December 4th, 1835.—Applied the Vento-inguinal truss. Saw the patient every third or fourth day for four weeks. There has been but little irritation, and

no excoriation at any time, from the pressure of the instrument.

After the instrument was properly adjusted, it was worn constantly for four months, since which, it has been laid aside occasionally at night.

June 4th, 1836.—Examined the patient. He is apparently cured: the retention has been perfect since the instrument was correctly adjusted, and the patient has been insensible of its presence during most of the time. He informs me that Dr. ATLEE has seen him repeatedly during the treatment, and the Chairman of the Committee on hernia is familiar with the case.

July 17th.—The patient called on me this day. He has relinquished his truss, and is considered radically cured.—*Op. cit.* p. 171.

The bowel burst into the abdominal canal, near the middle of its track, not having passed through the internal ring at all. The internal orifice did not correspond with the external ring, but remained concealed beneath the tendon of the external oblique muscle. The Ventro-inguinal truss was applied by Dr. CHASE, December 4th, 1835, and it was ordered to be laid aside July 17th, 1836. After the adjustment of the instrument, which required more care than necessary in common inguinal hernia, it was worn day and night for about four months, and in the day time only, for nearly three months longer.

Jan. 1st, 1837.—Examined by the Committee. The patient states that he has never suffered a protrusion, from about the 10th of December, 1835, (one week after the first application of the truss,) to the present moment. He wore the instrument occasionally from the time he was ordered to relinquish it until about the 1st of December last, since which he has not applied it at all. The ring is now quite as firm and small, if not more so, than that on the opposite side. The parts formerly pressed upon by the truss, display not the slightest traces of its presence. Much adeps covers the lower part of the abdomen. This patient is considered radically cured.—*Final Rep.*

Umbilical Hernia, of many years' standing; enormous orifice; complete retention by Chase's Umbilical Truss, with a block six inches in diameter; patient restored to usefulness, but deemed incurable.

CASE XIX.—Mrs. —, aged 55 years; duration of the accident many years.

May 21st, 1836.—Called to the case this day by Dr. HAYS. The patient has laboured under a small herniary tumour at the umbilicus for many years, and the bowel had been imperfectly retained by means of a bandage only.

On the 25th instant, a sudden protrusion took place, increasing the size of the tumour to that of a quart mug, and apparently extending the orifice much beyond

its previous limits. The tumour became very tender to the touch, and there was threatening of strangulation. Dr. HAYS reduced the bowel, and I then applied an instrument to act as a temporary protection, until a truss armed with a block of sufficient size could be prepared. The woman was enormously fat, her abdomen measuring three feet ten inches in circumference!

30th.—Having ordered an instrument expressly for this case, I applied it in the presence of Drs. HAYS and R. COATES. Dr. C. examined the aperture, which was of an oblong form; and the rent or opening in the linea alba was at least two inches and a half long, by one and a half in width! The block required to retain the bowel was six inches in diameter! Much difficulty was experienced in adjusting the instrument, owing to the folding and doubling of the integuments and the empty sac, after the reduction; and some fear was entertained that the whole mass of sac and integument might be reverted within the abdomen by the action of the block.

After the application, the patient was requested to rise, and walk about the room. In the afternoon she went down stairs and returned again. The retention was perfect.

July 17th.—The case was carefully examined in company with Dr. R. COATES. The orifice had contracted very much, and the sac had diminished in size. Some of the folds of skin had been for some time ex-

coriated by the pressure of the block; but this accident was much relieved by dusting the surface with carbonate of zinc. The truss had been removed several times in order to wash the part; but this had always been done with great caution, and by my own hands, while the patient was in the recumbent posture.

July 25th.—There has been no protrusion since the first application of the truss, and the patient has constantly attended to her domestic concerns with ease and comfort. The contraction of the skin and sac, with the absorption of fat produced by the pad, has rendered a larger block desirable, and it is proposed to substitute one of seven inches diameter.

In addition to the surgeons already named, the case has been examined by Dr. GAGE, of New York, and by Dr. BAIN, of Baltimore.—*Op. cit.* p. 174.

The orifice, as measured by the Chairman, May 30th, 1836, was two inches and a half long, by one and a half wide, running along the linea alba above and below the umbilicus; the sac, with the integuments covering it, was very large, and flabby after reduction. Dr. COATES thought that caution would be required in applying the truss, lest the whole mass should be reverted bodily within the abdomen! The patient was excessively fat. A truss with a block six inches in diameter, was applied for some months; one of seven inches in diameter was afterwards found preferable. The overlapping of the loose sac, which formed a soft cushion beneath the

block, gave rise to excoriation and mucoid transformation of the skin, which was relieved by dusting with the impure carbonate of zinc. On the 17th of July, the orifice was contracted to almost half its former dimensions, and the sac had become diminished at least one-fourth.

April 29th, 1837.—The patient was examined, and the truss removed by the Chairman this day. The sac, loose, flabby, and perfectly empty, even of serum, but not obliterated by adhesion, still remains, but is much diminished in size. There is no irritation of the surface, the parts being perfectly accustomed to the pressure of the instrument. The enormous obesity of the patient makes an accurate examination of the linea alba exceedingly difficult, but no signs of the hernial orifice could be ascertained by the finger. The truss was reapplied. The patient is perfectly comfortable, and attends to laborious duties with impunity.—*Final Rep.*

Umbilical Hernia, of twenty-one months' standing; age of patient 2 years; radical cure in five months by Chase's Umbilical Band.

CASE XX.—*February 15th, 1836.*—I was first called to the case to-day. The rupture has been much neglected from the first; but the mother had attempted the treatment of the case by pressure with the hand, &c., without effect. The orifice is so large that the end of the thumb can be readily depressed into the abdomen. This unusual deficiency of the tendons is

the principal peculiarity of the case. An umbilical band depressing the integuments of the umbilicus about five lines, was applied.

20th.—The bowels have been perfectly retained. There is slight redness of the skin.

March 19th.—Instrument raised from the rupture. No escape of the bowel took place.

April 8th.—Band removed. Child cried, and no protrusion took place. Band reapplied.

July 16th.—Since the 12th, the patient has not used the band. Considered cured.

The irritation produced in this case was never carried beyond a full degree of redness of the skin, and never occasioned material inconvenience to the child, who is now perfectly well, the parts having assumed their natural position.—*Op. cit.* p. 173.

Of this case the Committee have no knowledge other than that derived from the mother and the surgeon, until after the completion of the cure. Attempts to relieve this patient (a female) by pressure with the hand, when it cried or used exertion, were made without effect; but it is not certain that they were very faithfully made. The orifice is described to have been large enough to admit the end of the thumb with facility. The band was applied February 15th, 1836.

Retention was constant and perfect, and the band was finally removed on the 12th of July.

January, 1837.—Day not noted. Case examined by the Chairman. There has been no protrusion since the band was first adjusted. No signs of the sac appear. The linea alba, where the opening was located, is now firm, but not quite so much so as the remainder of that tendinous expansion. The child is active and playful. She is considered radically cured.—*Final Rep.*

Congenital Hernia; truss applied at the age of two months; radical cure in twelve months.

CASE XXI.—*April 1st, 1837.*—This case is noted in order to show that very young children endure the truss without inconvenience, which is contrary to the opinion expressed in the Preliminary Report. The nurse states that Dr. CHASE applied the Ventro-inguinal truss, which was shown by her to the Chairman, when the child was two months old. It is proper to mention that this instrument is preferred in all the varieties of inguinal hernia, occurring in children under five years of age, as it is better adapted than any other to the prominent abdomens and diminutive canals of these little patients. The truss was finally removed at the age of one year. The infant is now fourteen months old. The nurse insists that the truss never occasioned any inconvenience to the child, and very little redness of the part. The block rested directly on the skin for the greater part of the time, but occasionally the nurse inserted beneath it a layer or two of linen. The

child is now radically cured. It is scarcely necessary to remind those who have attempted the employment of trusses, with soft pads, in young infants, how much more severely the skin is usually affected by them.—*Final Rep.*

Common Inguinal Hernia, of many years' standing; age of patient 27 years; radical cure in twelve months.

CASE XXII.—Mr. —, merchant, aged 27 years. Accident occurred when a lad at school; cause unknown. An instrument was applied as soon as the disease was discovered, and he had constantly worn some variety of truss until he came under my care, Jan. 16th, 1835; but his bowel had never been retained for any considerable length of time by either of them.

20th.—The common Inguinal truss applied.

25th.—The patient has had one descent of the bowel since the last date. An instrument with a stronger spring applied.

November 13th.—No protrusion has taken place since last date. Truss worn with ease. The parts have exhibited scarcely any marks of irritation externally.

July 25th, 1836.—I have not seen the patient since November last. Dr. HULME met him to-day. He stated that he relinquished the truss six months ago. He has been travelling for some months on horseback, in the western country, often at the rate of fifty miles a

day, and says that he has not suffered any inconvenience from his long journey, nor has he perceived any symptoms of his former disease.

I shall give, under the head of diseases resembling hernia, an example of the danger of careless examinations in forming a diagnosis in this disease; the following instance displays, in the strongest light, the impropriety of putting the business of applying trusses, into the hands of those who know nothing of surgery. The former was a proof that life may be endangered by mistaking hernia for other diseases; and the latter shows that the comfort of the patient may be sacrificed, and his condition rendered worse, by mistaking other diseases for hernia.—*Op. cit.* p. 177.

The facts of this case, so far as the treatment is concerned, are taken from the statement of the patient, a highly intelligent gentleman, and the dates are added from the notes of Dr. CHASE.

The accident occurred in childhood. From the time when the disease was first perceived, to the 20th of January, 1835, a variety of trusses were successively employed, and neither care nor expense was spared in the selection. Not one of these instruments prevented the frequent descent of the bowel. The intestine escaped but once after the first application of CHASE's Inguinal truss, which was made on the day just mentioned. This protrusion occurred within three days of that time, and led to the employment of an instrument with a stronger spring. The latter was worn without

inconvenience, and produced scarcely any irritation. The truss was finally relinquished in January, 1836.

February 12th, 1837.—Patient seen by the Committee. He states that since he laid aside the instrument he has performed a fatiguing journey to the west on horseback, sometimes travelling fifty miles in a day. He has used much exercise of all kinds, and yesterday inhaled the nitrous oxyde gas. He is muscular and powerful.

The radical character of the cure is most amply proved in this case.*—*Final Rep.*

Common Inguinal Hernia, of four months' standing; age of patient about 45 years; radical cure in less than six months.

CASE XXIII.—*February 26th, 1837.*—This patient called at the office of the Chairman. He is by trade a weaver, and stated that he became affected with hernia about the 1st of April, 1836. CHASE's Inguinal truss was applied August 1st, 1836, and it was finally relinquished a few weeks ago. The man has continued at his trade up to the time of this note.

There are some traces of the secondary hyperemia still remaining on the parts which have been pressed

* This gentleman was examined last winter during the lectures at the Jefferson Medical College, by Professor GEORGE M'CLELLAN, and several Medical Students.

upon by the block. No other external signs of its employment are discoverable.

The external ring, on the affected side, offers much more resistance to the finger, and is much more contracted than that on the other side. The patient is pronounced radically cured.*—*Final Rep.*

Sub-Umbilical Hernia, of many years' standing; female about 35 years old; sac, globular and pediculated; contraction of orifice and apparent obliteration of the sac; case still pending.†

CASE XXIV.—*Notes by the Chairman.*—November 29th, 1836.—This female had a hernia through the linea alba, commencing about half an inch below the cicatrix of the umbilicus, and the circular orifice being about half an inch in diameter. The sac was surrounded by integuments much loaded with fat and densely fibrous cellular tissue, forming a globe nearly three inches in diameter, attached by a short pedicle as large as the middle finger.

The bowel filled this sac very readily on slight exertion, and was as readily reduced. Strangulation had been repeatedly threatened. When the bowel was returned, the sac was found to contain abdominal se-

* This patient was examined by Professor M^CLELLAN at the time stated in the foregoing note, and also about one month ago; the increased thickening of the ring was still observed.

† Now cured.

rum, which could be instantly expressed, but slowly returned on the removal of pressure. The distension was not sufficient to support the weight of the globe, which hung down against the abdomen. CHASE's Umbilical truss was applied on the orifice, the pedicle being pressed downward out of the way.

January 13th, 1837.—The tendinous orifice has been contracted to the diameter of three-eighths of an inch. The globular sac has been diminished very considerably. Its pedicle has been thrust down by the pressure of the block, until it appears as if attached entirely below the orifice of the sac which has become flattened; while the walls are thicker and the subcutaneous cellular and adipose tissue is much more condensed; so that what was formerly a globe, now strongly resembles a condilomatous tumour, except that the contracted serous lining of the cavity remains apparently unaltered in texture, and has formed no adhesions in the interior. The neck of the sac is probably closed, as there is no appearance of abdominal serum within. When the hernia is cured, this excrescence may be safely and readily removed by the knife; for the present it is reverted upward, and will be employed like a cushion beneath the block and over the orifice.

This singular hernia may probably have been produced by a small fatty tumour of the peritoneum forcing its way between the fibres of the tendon, and followed by the bowel forcing the tumour, with its attachment, bodily through the opening. See ABDOMEN, *fatty tumours of*, in the *Amer. Cyclop. of Pract. Med.*

April 29th, 1837.—Examined by the Chairman. The orifice is not discoverable; its site being again concealed by the base of the tumour, since it has been turned up in the form of a flap beneath the block. The sac now appears to be obliterated by adhesion or contraction, and the tumour is inflamed and slightly ulcerated, but gives the patient no pain. The case is from the country, and cannot have the advantage of constant surgical superintendence. Dr. Coates recommended that if the tumour should prove troublesome, it should be removed by the scissors or ligature.*—*Final Rep.*

Note by Chairman; Common Inguinal Hernia; Truss applied at the age of fourteen months.

CASE XXV.—This note is made merely to illustrate the applicability of trusses to young infants.

* This patient states that she first observed the tumour several years ago, and that it was then the size of “a full grown pea.” It had gradually increased until it had gained the size mentioned by the Chairman of the Committee. The abdominal opening is perfectly closed; the sac now presents but a very small remnant of its former dimensions, and seems to have been removed by interstitial absorption, aided by pressure. No inconvenience will even result from it in its present state; this remnant of skin can have no effect upon the state of the tendons, which alone gives permanent security. She is radically cured.

It should be remarked that the block of the instrument employed in this case was of peculiar construction: it was somewhat more flattened than those which I employ under ordinary circumstances.

H. C.

Nov. 18th, 1836.—The child is now eighteen months old. He has worn CHASE'S Ventro-inguinal truss four months, and has never suffered any considerable inconvenience from the pressure of the instrument, although the story of the mother betrays both ignorance and unwarrantable disobedience of orders in the management of it, and in consequence of these circumstances, temporary protrusion has frequently occurred. Still, the child's health which was previously injured, apparently by abdominal irritations occasioned by the hernia, has been much improved during the action of the truss. The action of the block in this case, as in most instances of common inguinal hernia in young children, was confined to the neighbourhood of the internal, and did not extend quite to the external ring. The attempt to approximate the edge too closely to the symphysis pubis, would, probably, occasion some trouble in the management of the perineal strap. The Committee have never seen ventro-inguinal hernia in very young children.*—*Final Rep.*

* There has been no protrusion of the bowel, in this case, since it was examined by the Chairman.

August 16th, 1837.—Child of Mr. S——, aged six weeks. Two days previous to the above date, this little child was ruptured it is supposed by vomiting. Doctor BOURNONVILLE, the family physician, was called in attendance and referred the patient to my care. On the 16th, I applied a Ventro-inguinal truss, which retained the bowel perfectly. I have watched this case with unusual interest up to this time. The truss has given no material inconvenience, no abrasion of the skin has followed its employment, and no marks are observable over the site of the rings and inguinal canal, except a little redness. It is with much pleasure that I have observed the candour of the Committee in correcting the statement which they

Inguinal Hernia supposed to be Congenital; age of patient about 22 years; Permanent Retention by Hull's Truss for eight years; Ring not obliterated; Testicle reducible; Cure believed to be radical by the use of Chase's Inguinal truss in eight months.

CASE XXVI. *April 8th, 1837.*—This patient is an intelligent young graduate from the country. His hernia was retained constantly by Hull's truss for eight years. He believes there was no protrusion in all that time; yet on the day of its relinquishment, the bowel protruded.

He believes that he was then able to return the testicle into the abdomen at will; but in this he may have been deceived by its disappearance beneath the skin

felt it their duty to make against the employment of trusses in young children in the Preliminary Report (p. 322). Although I had at that time some cases under treatment, the Committee had not had any opportunities of witnessing the action of the instruments. I have applied instruments in many cases of rupture in children, and in no instance have I seen material inconvenience resulting from their action.

One circumstance, however, should here be noticed, which will be found to occur during the use of all instruments in very young patients, more particularly when they press upon the pubic bone. It sometimes happens that during the first twenty-four hours after the application of the truss, the scrotum becomes swollen and apparently œdematous. By the removal of the truss for a few hours, and cold applications applied, the swollen parts and œdema will disappear, and the truss should again be applied.

No danger need be apprehended from these appearances. I never saw the swelling re-appear.—H. C.

of the abdomen. He states that CHASE's Inguinal truss was applied Feb. 18th, 1836. It was worn constantly by day and night until the month of October, 1836; he then relinquished it entirely. This day the parts present no trace of the action of the truss. The external ring is somewhat larger than its fellow of the opposite side, but no symptoms of a tendency to protrusion have been present at any time since the moment of relinquishing the instrument.*—*Final Rep.*

* Professor GIBSON examined this patient prior to the application of the instrument, and referred him to my care. He is a graduate in Medicine of the University of Pennsylvania.

April 3d, 1837.—By the advice of Professor HODGE, —, Esq. a gentleman possessing great muscular power, and of active business habits, called at my office, and requested me to examine a tumour in his groin, which he informed me had been there for several days. On examination, I found he had femoral hernia of the right side, which, after several efforts, I succeeded in reducing.

This gentleman received the injury fifteen years ago, in consequence of which, he obtained Dr. Hull's truss. He had worn these instruments faithfully for fifteen years, and they had *to all appearance* retained the bowel. Believing that the rupture might be cured, he was induced to throw aside his truss. On the second day following the discontinuance of the instrument, the accident occurred.

This note is intended to show the impropriety of relying upon security after the employment of soft-padded trusses; for, notwithstanding the bowel may not make its appearance externally, it will pass through the ring, enter the canal, and then rest against the soft structure of the pad, which, being elastic, will yield at every unusual effort of the patient.

Under these circumstances, a cure can never be expected.

Another case recently occurred to Dr. WARREN of New Orleans; and every surgeon who has had experience in the treatment of hernia, may have met with similar cases.—H. C.

By Dr. Parrish; Double Hernia; ill health from its imperfect retention with trusses; Chase's Double truss employed; perfect retention; improved health; case still pending.

CASE XXVII.—S. M., a lady about 32 years of age, applied to me in the summer of 1836, affected with ventro-inguinal hernia on the right side, and common inguinal on the other. She stated that about thirteen years ago she felt something give way while lifting a heavy weight. She felt sick and vomited, and was confined to her bed for several days. On getting up she discovered a small tumour in the left groin. She consulted an eminent surgeon, who applied a truss with a soft pad. She wore this instrument for five years, and it retained the bowel. About eight years ago she went into the country and threw off the truss, but found herself still liable to protrusion in this situation; after which, she took a long walk over a hilly road, and found herself affected with a hernia of the opposite side. She then applied a double truss, which she has worn ever since. During the whole of this period the patient has been subjected to great inconvenience, and frequently to severe attacks of pain from the imperfect retention of the bowel, and from the difficulty of adapting instruments to the parts. Her health is much impaired. She is subject to attacks of colic, poor appetite, pain after eating &c. I advised a trial of Dr. CHASE's truss.

7th Mo. 9th, 1836.—The patient called to inform me that she had been wearing Dr. CHASE's double truss

for about four weeks. It produced, for the first few days, great inflammation and soreness about the groins. The parts, however, soon became accustomed to it, and she experienced great relief from the instrument. Her appearance is much improved; her digestion good, and she enjoys more comfort than she ever experienced under the use of any other instrument. The bowel is perfectly retained. She finds it very important to have the instrument accurately adapted. She found some difficulty in accomplishing this at first.

1st *Mo.* 12th, 1837.—S. M. called on me to-day to say that she still continues to wear Dr. CHASE's truss. Her health is now good; she is entirely free from dyspeptic symptoms; experiences no pain from the instrument, and uses active exercise without causing pain. There has been no descent on the removal of the instrument for three months past. She considers the instrument far superior to any other in point of comfort.*

* It is not my intention, at present, in connexion with the above case, to discuss the pathological effects following upon the ill retention of herniæ by instruments, as I have enlarged upon this subject on a former occasion: but there are few persons who have laboured under hernia, even for a few months, who do not suffer considerably under colic, pains in the inguinal region extending along the canal, pains in the loins, dyspepsia, simple costiveness, or costiveness combined or alternating with diarrhœa, together with local pains and distress, pains in the limbs, head-ache, nervous debility and giddiness.

It has often been a matter of astonishment, both to my patients and myself, to observe how soon all these symptoms yield to the perfect and accurate retention of the bowel by a proper instrument.

By the Chairman. Umbilical Hernia of eight years' standing; age of patient ten years; cure believed to be radical in five months.

CASE XXVIII. *Feb. 24th, 1837.*—This little patient is stated by her mother to have laboured under a small umbilical hernia for eight years. She has been wearing CHASE'S Umbilical truss since the second of December last. No signs of the sac are visible on removing the instrument, but a hernial orifice at the umbilicus admits the tip of the little finger. There are no signs of irritation about the parts pressed upon. The hernia had been prevented from increasing before the use of the truss, by careful bandaging.

April 20th.—The patient again examined. The child has been using violent exertion, and the margin of the block has bruised the surrounding skin a little. There is no trace of irritation, but some slight secondary hyperemia is visible. No trace of a hernial orifice can be discovered. The patient is judged by the Chairman to be radically cured, but Dr. CHASE declines relinquishing the use of the truss for the present.*—*Final Rep.*

These symptoms are so clearly defined, that several surgeons in this city have pronounced their opinion, and proved the existence of hernia in cases in which the patients and their friends, from feelings of false delicacy, have endeavoured to conceal the fact.

H. C.

* *Aug. 3d, 1837.*—I examined this little Miss to-day, and am now satisfied that the bowel is perfectly secured. Ordered the instrument removed.

H. C.

By the Chairman. Inguinal Hernia of two years' standing; age of patient 13 years; radical cure by Chase's Inguinal truss in six months.

CASE XXIX. *April 27th, 1837.*—This little boy was brought before the Chairman this day. The facts connected with the previous history of the case are taken from the account by the child: the dates are from Dr. CHASE'S record.

About two years ago he fell from a tree, astride upon a fence. The accident was soon followed by hernia on the right side, which rapidly enlarged, and the intestine descended into the scrotum. Dr. CHASE states that the finger readily entered the abdominal canal. His Inguinal truss was applied on the 12th of May, 1836. On the night of the 13th it was laid aside till morning. From the 14th of May till the 7th of November, it was worn constantly, by day and night. Since the last date it has been entirely abandoned.

The two external rings appear now similar in all respects. There have been no symptoms of weakness, and the parts acted upon by the instrument retain no trace of its former presence. This child serves as an errand boy. He is radically cured.—*Final Rep.*

By the Chairman. Congenital Umbilical Hernia; Chase's Umbilical Band applied at the age of two months; cure deemed radical in two months.

CASE XXX.—*April 28th, 1837.*—This little patient is now 15 months old. Before the age of two months, the usual care in preserving the bowels in place by the hand, by bandage and compresses, and by a belt and soft pad, had been tried without obvious effect. The father states that the Umbilical truss of Dr. CHASE was applied when the child was two months old, and was steadily continued for six weeks, or, at most, two months, since which, the case has been left totally unprotected—not the slightest symptom of protrusion of the bowel has occurred.

There is a very slight degree of puffiness about the umbilicus in this case, as though the cicatrix had not yet acquired its greatest degree of firmness; but the accidents of childhood in a vigorous infant, from the age of four to that of fifteen months, are deemed sufficient proof that the cure is radical.—*Final Rep.*

The following highly interesting case was furnished by HENRY BOND, M. D., in reply to a note from the Chairman of the Committee, requesting an account of the particulars.

Femoral Hernia; supposed sloughing of strangulated omentum; return of hernia after the cicatrization of the abscess.

CASE XXXI.—On the 9th of April, 1836, I was

called to Mrs. M. Y., aged about 34 years, who complained of severe pain in the abdomen, and told me she had the cramp colic. I prescribed a full dose of laudanum and castor oil. A few hours after, I called and found that she had been vomiting, and was in no respect better. I was now informed by an attendant of a fact which the patient had refused to communicate, viz: that she had "a lump in her side."

Upon examination, I found a femoral hernia of the left side, which was with much difficulty reduced by taxis. A truss was applied as soon as it could be procured. I visited her every day, for a short time, to ascertain that the hernia was retained.

On the 16th I was called to see her again, and found her in the same condition as on the 9th. Soon after my last visit the hernia returned while the truss was on, which she immediately removed. After repeated and persevering efforts, and many hours delay, it was again reduced, and the truss again applied.

On the 18th, about mid-day, it suddenly returned, when she was in the street, attended with such violent symptoms that she with difficulty reached her house, which was only at a short distance.

Within an hour I saw her, and again attempted to reduce the hernia, but without success. I attempted, immediately after this, to obtain a consultation, but each of the eminent surgeons to whom I applied was either absent or indispensably engaged. In the even-

ing, two medical friends visited her with me, and reduction was again attempted without success. She was bled copiously; active purgative enemata were repeatedly administered, and, afterwards, opiate enemata. Cold was applied to the hernial tumour, and warm fomentations to the abdomen.

In the forenoon of the 19th, further attempts at reduction were made by myself and by the most competent surgical aid in the city. Vomiting and retching came on soon after the return of the hernia yesterday, and continued all night, accompanied with a pain which occasioned a constant groaning, and prevented sleep entirely until morning, when a short nap was procured by the strong opiate enemata. She has great thirst, and rejects every thing swallowed. Pulse very frequent; tongue parched; great heat and tenderness in the abdomen; the tenderness being very great about the umbilicus, and extending over the whole cavity. The hernial tumour is tense and tender, but has less sensibility and pain than the abdomen.

She was told that her case was regarded as hopeless without an operation, and that this, in her case, would be attended with great danger. She promptly decided, as she had done before, that she would not consent to an operation. Attempts at reduction were now discontinued. She remained without any essential change or abatement in her symptoms until the night of the 21st.

On the morning of the 22nd, I found a great change

in her condition. The vomiting had ceased, her thirst had abated, and her appetite had returned. The heat, pain, and tenderness in the abdomen, which were unabated yesterday, were now greatly diminished; her countenance has improved, and she has had a slight alvine evacuation. The hernial tumour continues undiminished in size, density and sensibility.

April 28th.—She has had no return of the vomiting, nor of the heat, pain and tenderness of the abdomen since the 22nd. The tumour has been increasing very considerably in size, and has been extremely tender, but without any considerable pain so long as the patient is at rest. She has had stools every day, but not without the use of purgatives. The appetite is variable. The patient has been down stairs repeatedly, but is unable to straighten the limb, owing to the tenderness about the top of the thigh. While the tumour has been increasing in size during the last few days, it has become rather softer, and its outline is less distinctly defined. During this day, she has experienced a sharp, burning pain, such as commonly occurs when an abscess is about to open spontaneously. About 9 o'clock, P. M., it burst and discharged a considerable quantity of dark and very foetid matter.

On the 29th, the patient informed me that she had rested well: that this morning she pulled “a core” out of the opening, at least six inches long, and as large as her little finger: that it did not look like other cores, as it was very dark coloured and foetid. I did not see

it, but had no doubt, from her description, that it was a part of the omentum.

The discharge rapidly subsided, and the opening healed entirely within ten days. Some stiffness, and inability to produce complete extension of the limb remained a few days after the opening occurred. As soon as the discharge, and the sensibility of the part would admit of it, I applied a truss with a view of consolidating the parts and to insure the certainty of effecting a radical cure.

On the 10th of May, she was so well as to be about, attending to her ordinary laborious occupation. The truss was worn only a very few days, as I was told by some of my surgical friends that it was useless, *as, from the condition of the parts, there must necessarily be a radical cure without the application of a truss.*

July 3d.—I was again called, and found that she had very great pain in the left groin, extending into the iliac region. She had nausea and obstruction of the first passages. There was a tumour in the groin, below Poupart's ligament, about the size of a marble. I made some attempts to reduce it, but without success, and had some doubts whether it was a hernia. I directed v. s. ζ xviii. copious purgative enemata, and afterwards a large dose of castor oil. In a little time she was relieved of the pain, and the tumour disappeared.

July 31st.—The hernia returned yesterday, and was

so painful as to prevent any sleep last night. I was called at 1, P. M. The tumour has become larger to-day and more painful, and she has been vomiting all the forenoon. She has had no stool since yesterday morning. The tumour is just below, and parallel with Poupart's ligament, and is about the size of the last joint of my thumb, firm, and painful on pressure. The patient complains of great pain in the abdomen, chiefly in and above the left iliac region. I directed a copious and active purgative enema, to be followed by a cathartic draught; called again, in a short time, with a medical friend, and found her in no degree relieved; directed two dozen leeches to be applied to the tumour, and afterwards cold to be applied; ordered a strong purgative enema, and after that operated, a large dose of castor oil. After the use of these remedies she became a little easier. At a little past midnight she ceased vomiting, and had a stool.

August 1st.—In the morning I found the tumour soft, and it was reduced without difficulty.

Since the last date, the hernia has re-appeared several times in spite of the different trusses she has made use of. She has generally succeeded in returning it herself; but, on three occasions, it has been attended with the same distress and difficulty as on the 31st of July.

One chief reason why the trusses have not been more effectual is, that her occupation obliges her fre-

quently to carry heavy burdens, and to pass up and down a very steep flight of steps.*—*Final Rep.*†

* The above case fully illustrates the fallacy of the opinion entertained by many, relative to the proper course of treatment after operation for strangulated hernia, or sloughing of an omental protrusion, namely; that, "*from the condition of the parts, there must necessarily be a radical cure without the application of a truss.*" It proves beyond dispute that hernia does sometimes re-appear even after the sloughing of the contents of the sac. Appropriate instruments should therefore always be employed after a protrusion of omentum, even when the protruded parts have suppured or sloughed away. It will be acceded that in those cases which require an operation, the ring is rendered still larger by the incision made by the operator for the relief of the strictured parts; but it is difficult to account for the re-occurrence of protrusion after the suppurative process has been once established at the neck of the sac, on any other supposition than, that it takes place before the edges of the ring have had time to re-unite with firmness sufficient to resist the force of the abdominal muscles. The safety and utility of the truss in cases of strangulated omental hernia after sloughing or absorption, is illustrated by Cases XXXII. and XXXIII.

† Having observed, at the close of the Final Report, that the Chairman of the Committee intended, on a future occasion, to make some comments upon Case XXXI., reported by Dr. BOND, I addressed him the following note:

MY DEAR SIR,

I observe, in the Final Report of the Committee on the Radical Cure of Hernia, a notice that you probably intend to publish some comments upon the case narrated at the conclusion of the Appendix of that Report.

As the whole subject is closely interwoven with the republication of your reports, and as the time of your departure from the country draws near, may I be permitted to inquire whether any communication from your pen on this subject may be expected within any short period of time?

I would also inquire if, in your opinion, the instrument employed in that case was so constructed as to render its failure in retaining the hernia an argument against the claims of trusses armed with wood?

Very respectfully,

HEBER CHASE.

REYNELL COATES, M. D.,

COMPARATIVE ANATOMIST TO THE U. S. SURVEYING
AND EXPLORING EXPEDITION.

Philadelphia, September 4th, 1837.

To which the Chairman returned the following reply:

SIR,

In reply to your note of this morning, I would state that it had been my intention to have communicated to one of the medical journals, the substance of a lecture on the means by which the radical cure of hernia might be accomplished after surgical operations, read before the Philadelphia Medical Society in 1834. Circumstances rendered it difficult to accomplish this design, and it was indefinitely postponed.

The object of the lecture was to show that the establishment of the suppurative process at the orifice by which the bowel escapes in hernia, would result in the formation of a barrier sufficiently strong to resist permanently any propulsion of the viscera, and a plan was proposed by which this process might be established with comparatively little danger of inducing peritoneal inflammation.

Your own investigations and improvements have rendered the plan proposed *unnecessary*, and, as it was in its nature not untended with danger,—*improper*. There remains, therefore, no object in giving it publicity.

Incidentally, in the course of this lecture, I alluded to the cases of radical cure resulting from sphacelation of strangulated omentum, and accounted for the happy result of these cases by describing the strong contractile power and solid nature of the bond of union between suppurating surfaces.

When called in consultation in the case to which your note makes reference, I stated my conviction that the bond just mentioned would be found an efficient obstacle to the escape of the intestine,

nor have I changed that opinion in consequence of the exception presented by that case.

But, in the application of the law, one thing is worth remembrance; namely, that considerable time is necessary to enable the bond of union to contract and to assume the requisite solidity. This time should be passed by the patient in a recumbent posture, if no instrument be employed; but in Dr. BOND's case, the circumstances of the patient did not admit of this kind of security, and the parts were necessarily subjected to the propulsive force of the intestines, before the barrier had acquired sufficient firmness to resist the unusual exertions which she was compelled to make in ascending and descending the most inconvenient stair-case which I ever saw.

I regret having expressed to Dr. BOND the unreserved opinion that "*from the condition of the parts, there must necessarily be a radical cure without the application of a truss,*" an opinion given without reference to the unusual labours which the woman was called upon to perform. The recurrence of this hernia has convinced me, that under such circumstances, the application of a truss until the parts have acquired due firmness is necessary, and that, in all cases, it is a proper precaution.

Your question with regard to the instrument employed, is easily answered. In form this bore more analogy to your Umbilical truss than to that designed for femoral hernia, though it differed widely from any of your instruments. The Committee having stated its approval of the principle of action, and the mode of application of your femoral truss, it is hardly necessary for me to express my objections to one so different in character.

I have addressed you this hasty reply, as it will be impossible for me to publish any remarks upon the subject.

Very truly, yours,

REYNELL COATES.

HEBER CHASE, M. D.

September 4th, 1837.

Having now completed the Reports of the Committee, together with the observations appended thereto, and having also added such further notes on my own authority as were thought necessary to elucidate some additional facts in connexion with those cases, the following pages will contain the statement of a few cases of peculiar interest which were never thrown before the Committee.

The following cases will illustrate the correct mode of treating omental hernia after sloughing has taken place.

Mr. —, stone-mason, aged 20 years; Strangulated Inguinal Omental Hernia, from lifting a heavy stone. Sloughing of the omentum, and radical cure by the use of the Inguinal truss.

CASE XXXII.—*Dec. 29th, 1836.*—I was requested this day to visit the patient, whom I found labouring under a strangulated omental hernia. The tumour occupied the whole length of the inguinal canal, but did not descend into the scrotum. This tumour exhibited an inflammatory appearance, was hard to the touch, giving pain on pressure, and had the peculiar doughy feel which usually attends omental protrusion, and some abdominal tenderness which was accompanied with febrile action in the system. It had been about five days since the accident happened; the patient had been attended by another practitioner, who administered laxative medicines, and had ordered eight

ounces of blood to be taken from the arm two days previous. Taxis had also been employed, but to no purpose.

Believing it yet possible to reduce the omentum, I ordered leeches to the part, followed by saturnine lotions, brisk cathartics, and rest.

30th.—Bowels freely opened; abdominal tenderness removed; febrile excitement abated; inflammation and tenderness of the tumour less, but the parts felt very firm at the internal abdominal ring. I endeavoured to reduce the tumour by taxis, but with no effect. Cold applications were applied.

31st.—The patient was bled again from the arm $\frac{3}{4}$ xiv. I instituted taxis; no relief was obtained thereby. The tumour continued firm at the ring.

January 2nd, 1837.—Ceased all application.

3d.—A slight softening at the centre of the tumour was observed. I ordered warm infusions.

4th.—Bread and milk poultices were applied.

9th.—The bread and milk poultices having been continued since the 4th, the tumour now fluctuates quite freely.

11th.—The tumour discharged itself by a small aperture, which was enlarged by the lancet.

13th.—The sphacelated portion of omentum was removed, leaving a cavity.

14th.—Gradual pressure was applied.

17th.—An instrument with a very light spring was adjusted.

23d.—The patient was permitted to walk about the room with the truss on.

30th.—He was allowed to leave his room, and in a few days he returned to his business, still wearing his instrument by my orders.

Shortly after this, the young man left the city to fulfil an engagement in the country, and I did not see him again until

May 6th.—When I was requested to visit him at his father's house, where he had been brought from the country, having received a severe injury of the knee-joint. He was not wearing the instrument.

10th.—I asked him when he threw aside his truss; he replied, "a month ago." He also informed me that he had never felt the smallest inconvenience from his rupture since he had been permitted to leave his room.

After his recovery from the injury of his knee, he returned to the quarry. I have seen him occasionally since. He is radically cured.*

"As the operation for (strangulated hernia,) does not usually

Supposed Omental Hernia, of six days' standing, caused by fast walking; age of patient about 21 years; cure believed to be radical from absorption, and use of the truss.

CASE XXXIII.—Miss —, a highly respectable young lady, aged about 21 years, had her attention drawn to a pain and tumour in her right side, while dressing for an evening party, April 19th, 1836.

This lady had walked, late in the afternoon of that day, a mile in the city, to which she attributed her rupture.

prevent the parts from becoming protruded again, a truss must be applied before the patient leaves his bed, and afterwards constantly worn.”—*Mr. S. Cooper's Dic. Prac. Surg.*

“The treatment of a patient who has undergone the operation for any form of strangulated hernia, will materially influence the final result. This operation does not, like some others, cure the affection for which it was performed; it forms only a temporary means of relief, to save life. When the protruded parts have been returned, light dressings of compresses, retained by a bandage, should be applied; the patient should be kept perfectly quiet, and not allowed on any account to stir from his bed. His diet should at first be very abstemious, and if the bowels be not opened within five or six hours, a dose of castor oil, or some other mild laxative, may be given, aided, if necessary, by enemata. If the symptoms are very violent, and the pulse, &c. indicate the existence of inflammation, venesection, leeches and fomentations, may all be resorted to. When the parts have completely united, and before the patient rises, a truss should be applied, a neglect of which precaution would almost certainly result in a second protrusion.”—*Notes to Colles' Surg. Anat. by J. P. Hopkinson, M. D.*

April 26th.—I was requested to visit her by her physician, who had been in daily attendance since the accident happened. I found her confined to her bed, and labouring under an omental hernia extending from the internal ring two and a half inches toward the pubes, and nearly of the size of a man's wrist, highly inflamed, and very tender to the touch. The pulse was excited, and the patient had some fever. She had suffered greatly from taxis, the only means of reduction employed by her physician: this treatment had, at different times, produced symptoms of strangulation.—4 o'clock, P. M. I ordered v. s. \bar{z} x., laxative medicines, cold applications to the tumour, and perfect rest.—8, P. M. Pulse reduced; fever diminished; two discharges from the bowels were obtained; the pain and soreness in the tumour still continue. Ordered \bar{z} vii. of blood from the part by leeches, the bleeding to be encouraged by warm applications.

27th.—9, A. M. The tumour diminished in size, pain and soreness.

28th.—Patient comfortable. Careful efforts were now made to reduce the omentum, but without success. Pain again produced by taxis. Ordered lead water to be applied.

29th.—The limb being flexed in the proper position, a second attempt was made to reduce the tumour, but no relief was effected. That portion of the tumour which is over the site of the internal ring was now

observed to be firmer than other parts. $\frac{3}{4}$ vi. of blood were ordered to be taken from this point, by leeches.

May 1st.—The firmness at the internal ring continues.

2nd.—Poultice ordered to the part.

5th.—The patient now experiences no unpleasant symptoms whatever. The tumour is firm at the internal ring as before, but is diminished in size; it is soft and elastic throughout the remaining portions. The bowels have been kept freely open.

10th.—The tumour has declined to half its original size since the last date. Ordered all local applications to be removed, and one ounce of Epsom salts to be administered.

12th.—I found the patient still in bed. I applied pressure by means of compress and roller.

15th.—Patient rose and walked the room with comparative ease.

18th.—Removed the bandage and applied an instrument, the tumour having quite disappeared, except a slight thickening at the internal ring.

20th.—Truss worn without inconvenience.

30th.—Saw Miss —; she had been in the country;

returned to-day, and now feels none of the effects of her former malady.

July 20th.—Miss —— continues well.

January 2nd, 1837.—I ordered the instrument to be finally removed.

August 10th.—This young lady has now left the city for the west, apparently free from hernia.

ON DISEASES MISTAKEN FOR HERNIA.

In my Treatise on the Radical Cure of Hernia, published in 1836, p. 185, I entered at some length on "Diseases Mistaken for Hernia." My views, as set forth there, have since been most fully sustained. It is not my intention to enter into a full account of those diseases and their treatment, that task being reserved for a future occasion, but it may be proper merely to call the attention of the reader to some cases which have recently fallen under my observation.

Among those most commonly met with, are: *Varicoccele*, or a varicose state of the veins of the cord. *Buboës*, or glandular swellings in the groin from any cause. *Hydrocele*, or dropsy of the tunica vaginalis. *Hydrocele of the Cord*. *Enlargement of the Cord* from any cause, and *Fatty Tumours*.

Varicoccele or Cirsoccele. Prior to the year 1837, I had been consulted in more than a dozen cases by persons for relief in hernia, when, upon examination, I found them labouring under varicoccele, and frequently wearing trusses applied by truss-makers and druggists.

Patients of this description are still constantly falling under my observation. It has heretofore been almost universally the custom for practitioners to send their patients to instrument-makers for trusses, and it is by no means uncommon to hear some of these gentlemen boast of the number of trusses *they* have "put on." Should they be able to distinguish an enlarged vein, a firm tumour, or a bag of water, from a bowel, the knowledge appears of little moment to them, provided they effect their object, *the sale of a truss*, even at the risk of the health or life of the patient.

It is not altogether without precedent even at the present day, for surgical authors to censure the profession for mistaking varicocele for hernia; and there can be no doubt that such mistakes may sometimes happen even amongst the "Fathers of the Medical profession;" but it may safely be said that in those cases where trusses are thus improperly employed, there is seldom ground for believing that they were applied by those whose extent of surgical knowledge and acumen have equalled their desire for such acquirements.

That these mistakes should occur is not to be regarded as at all surprising, when men who have laboured hard and long in the profession, and who have taught and written much for the benefit of their younger brethren, are found to employ the following language in opposition to that of men of perhaps equal experience, such as Sir Astley Cooper, Lawrence, Sir Charles Bell, Tavernier, Dorsey, Gibson, Mr. S. Cooper, Warren, Colles, &c. &c.

“Various instruments of this description (trusses) are before the public. Each must finally stand on its own merits. It is also worthy of remark, that surgeons are far from being the sole umpires on this subject. Hernia is a very common disease, and a numerous body of persons have had ample experience in the use of the truss. Many of these individuals are men of intelligence and reflection, who feel themselves qualified to form a judgment of their own. Hence public opinion will materially regulate this subject, independently of the medical profession.”—*Parrish's Surg. Observations*, p. 4.*

* “No disease of the human body, belonging to the province of the surgeon, requires in its treatment a greater combination of accurate anatomical knowledge with surgical skill, than hernia in all its varieties.”—*Sir Astley Cooper*.

“It can hardly be necessary to say, that the surgeon should be careful to see that the truss fits, as his success and reputation depend on such care. A truss which does not press enough is worse than none at all, as it occasions loss of time, and deceives the patient or his friends; and one which presses too much, or on an improper part, gives pain and trouble, by producing an inflammation and swelling of the spermatic cord, and sometimes of the testicle.”—*Lawrence*.

“When the hernia is reduced, we still feel the empty sac; and now the surgeon must be particularly careful that no portion of the gut or of the omentum remains in the neck of the sac, when he is about to apply his compress or truss; for high inflammation, or all the effects of strangulation, may result from this.”—*Sir Charles Bell*.

“Too much attention can never be paid to the application of a herniary truss; because it is upon the manner in which it is adjusted, that depends not only the cure of the hernia, which may often be effected in young subjects, but also, we may say, the life of the patient. A truss, when badly applied, is worse than useless, and will always have a tendency to produce mischief.”—*Tavernier*.

GLANDULAR SWELLINGS IN THE GROIN.

Tumour in the Groin mistaken for Hernia; age of patient 6 years; application of poultice to the part; discharge of contents; cured.

CASE XXXIV.—*April 24th, 1837.*—A lady called at my office accompanied by her little son, aged 6 years,

“The large proportion of mankind who are afflicted with this complaint;—the great variety of forms in which it appears;—the fatality which results from its improper treatment, and the ample resources of surgery in preventing its evil consequences, are circumstances which combine to render the investigation of hernia peculiarly interesting.”—*Dorsey.*

“To accomplish this purpose, (the cure of hernia,) great attention must be paid by the surgeon in adapting the instrument to the parts, and by the patient in wearing it without intermission.”—*Gibson.*

“The first applications of a truss should always be made under the superintendence of the surgeon himself; and care should be taken to put on the instrument in such a manner that the lower third of the pad will compress the neck of the hernial sac against the os pubis, while the upper portion will compress the abdominal ring. The surgeon should also make the patient acquainted with the right manner of applying the truss, the principles on which it keeps up the bowels, and affords a chance of a radical cure.”—*Mr. S. Cooper.*

“If this particular period (time of applying trusses) should be more carefully observed by surgeons, and the application of the truss, instead of being abandoned to mechanics, receive a greater share of their attention, they might be instrumental in obviating much of the distress which has been entailed upon the world.”—*Hooper's Med. Dic., Article Truss.*

“These symptoms (of varicocele) lead patients and ignorant truss-makers to consider the disease hernia, apply a truss, and thus aggravate the disease.”—*Warren's Surgical Observations on Tumours.*

whom I had cured of an inguinal hernia of the right side. She informed me that she thought "the disease had returned." Upon examination I found a tumour of about the size of a hen's egg, located near the seat of the internal ring, but a little outward and upward therefrom; and upon further examination, I was convinced that it was not a return of the bowel. The mother fearing there might still be something wrong in the case, I requested Dr. R. Coates to see the patient, who coincided with me in opinion. I ordered the parts to be poulticed. In five days the abscess opened spontaneously: the contents were discharged, leaving a smooth cavity, the edges of which were drawn together by adhesive strips, and in ten days the patient was well.

Not unfrequently, fatty tumours are found to occupy the seat of crural herniæ, which should not be mistaken for this disease.

"From the course in which the spermatic cord is seen to run down along the fore part of the pubes, you may infer that, in the old manner of applying the pad of the truss upon the external ring, there was some danger that the cord would be compressed between the instrument and the bone. The pain caused by this, you must suppose, would be very great, and yet it has been submitted to, by some patients, for a length of time, at least sufficient to produce serious diseases of the cord or testicle."

"Again, as the chance of curing hernia by wearing a truss depends on our being able to close up, or restore to its natural state, that opening at which the bowel protrudes, it is obvious, that the instrument should be made to press on this point, or on the internal abdominal ring; for pressure applied to any part below this, leaves the mouth of the sac open, and ready to receive the viscera on any future exertion."—*Colles' Surg. Anatomy.*

Femoral Hernia mistaken for an inguinal gland; age of patient about 45 years; operation for strangulated hernia; death of the patient.

CASE XXXV.—A few months ago I was requested to visit a public institution near this city, to apply a truss in a case of hernia. On examination, I found the patient labouring under irreducible femoral hernia. The tumour was of the size of a filbert, and could not be returned into the abdomen. The surgeon and attending physician of the house thought the existing tumour to be a lymphatic gland; that the bowel had been returned, and wished the instrument to be applied. Satisfied that such was not the case, I refused to comply with their request.

On the third day following, the symptoms of strangulation came on: an operation was performed for his relief, but the patient died a few hours after.*

Hydrocele, or Dropsy of the Tunica Vaginalis.

CASE XXXVI.—In the early part of the year 1837,

* This species of hernia is liable to strangulation, even before it can be felt externally. Hence it is obvious, that we must establish our diagnosis principally on the preceding and concomitant symptoms of the case. Some fatal effects have resulted from mistaking strangulated crural hernia for inflammation of some of those lymphatic glands which lie in the vicinity of the crural ring. The deep situation of the hernia, together with its very small size, have contributed to render the mistake more frequent. In some instances the difficulty of discriminating is considerably increased by an enlarged lymphatic gland lying anterior to a very small hernia.—*Colles' Surg. Anatomy.*

I was called to visit the son of a clergyman of this city, who was supposed to be labouring under double inguinal hernia. He was wearing a single truss. On examination, I found that whatever might have been his former condition, he had at this time, no protrusion of the bowel; but he was labouring under hydrocele on both sides, which, by a superficial observer, might be mistaken for ruptures.

This watery effusion could be readily returned into the abdomen, showing that the necks of the sacks were not closed. Upon further examination, I found a general dropsy of the system, and that the patient had laboured, not long before, under an attack of scarlatina, the dropsy being one of the sequelæ of this disease. I requested that the family physician might be called in attendance, which was done. The patient died, however, of hydrothorax, in a few days.

Hydrocele of the Cord.

CASE XXXVII.—On the 11th of August, 1837, a gentleman and his wife, from the interior of this state, called on me (by the advice of their physician,) with their little son aged three years, to consult me in relation to an inguinal rupture, to which it was supposed their child had become recently subject.

After a careful examination, I found the disease to be *dropsy of the cord*. The fluid could not be returned within the ring; but the tumour presented at all times the appearance of a hernia. Under appropriate mild

treatment, the affection disappeared in about a week. As the physician whose patient the child had been, thought there was at times a protrusion of the bowel, I furnished the parents with an instrument to be employed in case the bowel *made its appearance, but under no other circumstances*. The parents returned home with the child, and I have heard nothing further of the case. Dr. WARREN of New Orleans, has met with two similar cases.*

Enlargement of the Cord.

CASE XXXVIII.—*August 10th, 1837.*—I was requested to see Master —, aged five years, who had an inguinal hernia, which had passed only into the upper portion of the inguinal canal. This was easily reduced, leaving a tumour which resembled a bowel, and, on examination, was found to be at-

* From the connexion which inguinal hernia has with the spermatic cord, you must expect that those diseases to which the cord is subject, will bear a resemblance, more or less strong, to this form of hernia. Thus, when water collects in a cyst on that part of the spermatic cord which lies in the inguinal canal, forming encysted hydrocele of the cord, the appearance and feel of the parts will not be such as to constitute a satisfactory distinction between these diseases. We must then depend a good deal upon the history of their origin and growth, and also upon their attendant symptoms.—*Colles' Surg. Anatomy.*

A sac of fluid formed upon the cord, or the cellular hydrocele of the cord, may be mistaken for this kind of hernia. If large, the tumour may be known from its transparency, its uniformity, and elasticity; it does not receive the impulse from coughing, as the hernia does.—*Sir Charles Bell.*

tached to the whole length of the cord between the external ring and the testicle. Strong efforts were made to detach the tumour, but without effect. The hernia being reduced, I applied the Inguinal truss, which perfectly retained the bowel, the tumour remaining in the same situation.

12th.—I requested Dr. R. COATES to see this patient. On examination his opinion corroborated my own. We judged the tumour to result from a deposition within the substance of the cord.

13th.—The patient wears his truss without any inconvenience.

17th.—Since the application of the truss there appears to be an evident diminution of this tumour.

Sept. 15th.—On a careful examination of this case to-day, no appreciable difference could be observed between the two cords by the eye; and a very slight thickening could be felt between the testicle and abdominal ring.

Ventro-inginal Hernia, which had passed into the scrotum; occurred while fox-hunting; mistaken for Hydrocele; patient objected to the operation for Hydrocele.

CASE XXXIX.—*January, 1836.*—H—S—, an English gentleman now resident in Philadelphia, has been subject to ventro-inginal hernia of the left side for ten years. This accident occurred in fox-hunting.

This patient consulted Dr. HARTSHORNE, who referred him to me. The hernia was easily reduced, and was perfectly retained by the ventro-inguinal truss. He had never worn any instrument previous to this application. *The tumour always retired at night, and re-appeared during the day.* About five years ago he consulted a Danish naval surgeon, then on the West India station, and the case was pronounced hydrocele. Two different hours were appointed on different days, for the operation of tapping and stimulating injections; but fortunately the fears of the patient in both instances prevented the execution of the design! No attempt at reduction had been made by the surgeon, as there was not even a suspicion of hernia in the case; and the diagnosis was thought to be so perfectly plain, that great offence was taken at the unwillingness of the patient to submit to advice! The reading of a medical work at length convinced the gentleman that he laboured under hernia, which induced him to apply to Dr. HARTSHORNE.—*Chase on Hernia*, p. 190.

Varicoccele mistaken for Hernia; case of four years' standing; application of Dr. Hull's truss; afterward of Mr. Stagner's instrument.

CASE XL.—A—Y—, Esq., a gentleman of high standing, from one of the southern States, came to Philadelphia for the purpose of consulting me relative to a supposed "scrotal hernia," with which he had been induced to believe himself affected.

About five years ago he consulted a gentleman, not

of the profession, who acted for the sale of a celebrated truss invented in New York; who, under the belief that the case was one of genuine hernia, applied the truss. The patient continued to wear it for some time; but finding the disease greatly aggravated under its use, he at length relinquished it.

His disease still continuing, he applied for relief to a gentleman in Washington, D. C., who furnished him with Mr. Stagner's truss. This instrument he continued to wear for several months, until the distress resulting from the complaint became altogether insupportable.

On examining the patient, I found that he laboured under an unusually extensive enlargement of the veins of the spermatic cord! He had cirsocele, and there were no signs whatever that hernia had existed in the case at any time!

This information being communicated to the patient, his joy and gratitude were as great as could well be imagined under such circumstances; for he had been harassed and annoyed for years with even an exaggerated dread of strangulated hernia and the knife!—*Op. cit.* p. 178.

* I have more than once known a truss applied for this disease, (varicocele,) and in one instance, to the son of a medical man, by his father.—*Cooper's Lectures.*

Inflamed Inguinal Gland mistaken for Hernia; age of patient about 30 years; injury from the improper use of a truss; Fistulæ; cure.

CASE XLI.—*March 25th, 1837.*—I was requested to see Mr. —, from Virginia, a gentleman of a corpulent habit, good constitution, and who had heretofore enjoyed general good health. This gentleman's attention was first called to a tumour in the right groin, near the seat of the internal ring, about two years ago, when he consulted a physician, who applied one of Dr. Hull's trusses. This instrument gave him no material inconvenience. He wore it about two months, when, the tumour not disappearing, he threw it aside. Shortly after, he applied a second instrument, with a stronger spring, but with no better success.

Soon after the trial of the last named truss, he met with the instrument called Semple's truss, (the late Dr. Hull's spring, with Price's leaden conoidal block.) This truss is now in my possession: he wore it for a few days with the leaden conoid placed directly on the site of the internal ring, but was confined to his bed by the pain produced by the instrument. His tumour not disappearing, and his groin having received great injury from the pressure, he threw aside all trusses.

I found him able to walk about, but with his right inguinal region very much swollen, of a bluish colour, with two small suppurating orifices on a line with Poupart's ligament, and near the site of the internal ring.

I ordered a large poultice to the groin, and left him in the recumbent position.

26th.—On the removal of the poultice to-day, two more orifices were observed: one, above those before mentioned, and about an inch nearer the anterior superior spinous process of the ilium: the other was situated a few lines nearer the os pubis than those first spoken of.

A communication could be traced between the first three mentioned, by which they were united from twelve to eighteen lines below the surface.

The upper one communicated with still another orifice further to the right, and at the outer side of the thigh; while the lower one penetrated almost to the angle of the pubic bone.

27th.—Dr. R. COATES was called in consultation. Poultices were removed, but re-applied.

28th.—Poultices removed; matter of a greenish colour escaped on pressure. Ordered injections of sulphate of copper grs. xxx. to the ounce of water; enjoined rest in the recumbent position.

30th.—The poultice re-applied.

April 1st.—Professor GIBSON met us in consultation this day. On the removal of the poultice, a fifth abscess was discovered situated a little below that last men-

tioned, extending down the thigh the distance of four inches. Injections were also thrown into this extensive opening.

It was suggested that a seaton should be introduced from the upper orifice to that next adjoining, and that the remaining fistulous communications should be treated by the injection of sulphate of copper, reduced one half in strength.

2nd.—Professor HORNER met me in consultation this day. I now applied graduated pressure over the abscesses indiscriminately by means of cloth of elastic webbing and compresses; attention was also paid to his diet, which was ordered to be mild and nutritious. Two grains of blue pill were directed to be taken every night, and mild laxative medicines, when required.

Cold applications to the parts were also occasionally employed when the heat of the parts was increased.

12th.—Upon examination it was found that the abscesses were closing at the bottom; treatment continued.

15th.—No material change having taken place where the seaton was employed, it was removed, and the injection of sulphate of copper substituted.

20th.—No material change.

25th.—The abscess, where the seaton was employed, is now uniting under the use of the copper.

29th.—The part of the abscess extending towards the os pubis is now perfectly closed.

May 9th.—The abscess which passed down the thigh is completely healed: the other fistulæ admitting a probe to the depth of two or three lines only.

18th.—Fistulæ entirely closed; patient permitted to rise and walk about the room.

20th.—Patient rode out for the first time.

25th.—Compresses removed.

30th.—Mr. — left the city for Virginia.

We saw no indication that hernia had ever existed in this case.

Varicoccele mistaken for Hernia, after cure of Hernia; age of patient 28 years; test of cure, two and a half years discontinuance of the instrument.

CASE XLII.—Common inguinal hernia of the right side. Mr. —, a gentleman aged 28 years, accustomed to much exercise. Accident of more than two years' standing. The patient had never worn a truss before he placed himself under my care.

In January 1835, my common Inguinal truss was first applied. I saw the patient frequently for the two first months; after which, he regulated the instrument for himself. He continued the use of the truss two months longer, and then relinquished it without my advice.

June 10th.—I saw the patient again. There had been no protrusion in the interval, but he complained of slight pain and a sensation of weakness in the part, when he rode on horseback, or was driven rapidly over the pavement in a carriage.

May 20th, 1836.—The patient came to me stating that he believed there was a relapse of the disease, and that the bowel was in the scrotum. I examined the parts very carefully, and found the cure complete. The rings were perfect, but he had laboured under a slight cirsocele on the right side, which had been considerably aggravated by active exercise and the heat of the weather.

July 20th.—The patient continues well of the hernia, and the cirsocele has been diminished under the usual treatment. He has never been examined by any other surgeon, having steadily refused to submit to such an exposure.—*Op. cit.* p. 176.

ON THE DELAYED DESCENT OF THE TESTICLE.

The retention of the testicle in the abdominal cavity for a time after birth, is not a very unfrequent occurrence: its passage downward into the scrotum may take place at any subsequent period, and is usually followed by the descent of the bowel, (enterocele.) I have never seen a protrusion of omentum under these circumstances.

Delayed descent of the Testicle for 18 years; age of patient 20 years; Inguinal Hernia of two years' standing; Testicle brought down into the scrotum; bowel restored, and truss applied.

CASE XLIII.—Mr. —, aged 20 years, of a remarkably robust constitution, but of sedentary habits, (a cordwainer by occupation,) consulted me relative to his rupture. On examination, I found the testicle in the canal. I introduced the index finger, carrying it around and above this organ, and brought it down into the scrotum, without material pain to the patient. On the removal of the finger the bowel immediately followed, but was readily restored to its proper situation. In the application of the truss, no pain or unusual inconvenience was felt by the patient. The bowel was perfectly retained, while the testicle was resting in the scrotum. This patient informed me, that prior to his placing himself under my care, the bowel sometimes descended, sometimes the testicle, and not unfrequently both appeared at the same time. In the last case the testicle usually appeared first, the bowel

following; and, pressing upon it, gave him great pain, which resulted, no doubt, from the extreme tenderness of the organ under such circumstances.*

Late descent of the Testicle; age of the patient 22 years; subject to Hernia for several years; Testicle in the scrotum; employed a truss with the Testicle put up into the belly for one year; wore another instrument with the Testicle in the scrotum one year; afterward the Testicle was replaced in the belly and a similar truss continued for a year; Chase's Ventro-inguinal truss applied after the Testicle was brought down into the scrotum, and the bowel reduced; cure of the Hernia believed to be radical.

CASE XLIV.—August 27th, 1837.—Mr. —, aged 22 years, of delicate health and feeble constitution, consulted me this day.

This gentleman has been subject to inguinal hernia for several years, accompanied with a descent of the testicle. He states that about four years ago he consulted a surgeon of New York, who recommended Glover's truss, and directed that the testicle should remain in the scrotum. On applying for the truss, the inventor assured him that the testicle should be returned into the belly with the bowel, and the truss then put on.

* "The testicle, involved in the contents of the hernia, cannot be clearly distinguished. This species of hernia is particularly liable to be mistaken for hydrocele, being sometimes combined with a quantity of water, which, falling from the abdomen into the lower part of the tumour, renders it transparent, and gives the idea of the whole being a hydrocele."—Colles' *Surg. Anatomy*.

This was done; this instrument was worn for a year, the patient receiving no other benefit from it than that which resulted from the general retention of the bowel, although, on any unusual effort, it would escape. He now applied to Dr. Hull, who directed that the bowel should be reduced, leaving the testicle in the scrotum. This was accordingly done; Dr. Hull's truss, under his (the late Dr. Hull's) direction, was worn for one year. The patient had still no further prospect of relief. He was then advised by Dr. Hull to have the testicle put up into the cavity of the abdomen; to which operation the patient reluctantly consented.

A second instrument was now applied, which retained the bowel and testicle another year. At the expiration of that time not finding his anticipations and the assurances given him realized, he was induced to abandon all instruments. From the continual protrusion which took place whenever he used unusual exertion, his hernia had at this time become nearly a direct, or of the ventro-inginal variety. As a dernier resort, he addressed himself to Dr. GAGE, who applied my Ventro-inginal truss. The ring had become very large, and the testicle could be passed up through it with great ease. Before he applied the instrument, Dr. GAGE placed the testicle in the scrotum; the truss gave him no inconvenience, and he has continued under the charge of Dr. G. up to this date.

The patient informs me that the bowel has never since descended to his knowledge. He has worn the truss constantly during the day, and generally at night, following the direction of his surgeon.

Condition of the parts.—The external ring appears to be located a few lines nearer the thigh than usual. On reverting the scrotum, and carrying up the finger to the orifice, it is found contracted to the size of that of the opposite side; resisting, but not appreciably thickened, as has been observed in some cases in the Report. Coughing, and other efforts, produce no greater outward propulsion than what is felt when the fingers are placed on the opposite side of the body. There is an appreciable absorption of the adipose matter beneath the skin. The skin appears in a slight degree thinned, but no adhesion has taken place between it and the parts beneath.

By placing the patient in a recumbent position when the instrument was applied, raising the block from the skin, and introducing the finger up to the ring, it was observed that the centre of the block rested over the orifice. On permitting the truss to resume its accustomed position, the finger was forced by the block from its situation, and the block assumed its natural relation to the parts.

In this manner it will be observed that the accurate adaptation of an instrument can be ascertained with facility.

The above case is truly interesting, and Dr. GAGE has succeeded to admiration in the successful treatment of it, agreeably to the definition of a *radical cure* given by the Committee on Hernia.

Hernia in a child one year old; no descent of the Testicle; instrument applied.

CASE XLV.—*May 18th, 1837.*—I was consulted to day by Dr. LEACH of Boston, respecting a hernia in a child one year old. The protrusion of the bowel had produced much annoyance to the little patient. The testicle had not yet made its appearance; neither could it be detected in the inguinal canal, nor at the ring. Under these circumstances as there were no means of calculating the precise time at which the testicle would descend, and as the case was continually subject to strangulation, I advised the application of an instrument. The patient is still under treatment, and I am not aware that any inconvenience has resulted from the use of the truss.

Partial descent of the Testicle mistaken for Hernia; Testicle yet in the canal; age of patient 35 years.

CASE XLVI.—Mr. —, aged 35 years, of feeble constitution and delicate health, consulted me on account of a difficulty which he supposed to be a rupture. He had requested the advice of several medical gentlemen, who had as often advised the use of trusses. He had made several efforts to wear these instruments, but always experienced so much pain and suffering, that he was obliged to abandon them.

On examination, I found that the testicle had descended into the canal, and was checked in its passage

to the scrotum, at the external ring, and rested just at the edge of the pubic bone.

No instrument under these circumstances could be tolerated, as they invariably caught the testicle between the truss-pad and the pubic bone, or the tendon of the abdominal muscles.

I assured him that it was the testicle and not a bowel which gave rise to his suffering; and as the affection gave him no inconvenience when the truss was not applied, I advised him to discard all idea of using an instrument.*

* There is no disease more difficult to be distinguished from hernia, than an inflamed state of the testicle, which, having passed through the internal abdominal ring, remains covered by the tendon of the external abdominal muscle, not having descended so low as to escape through the second ring. How closely this must resemble a variety of inguinal hernia may be readily inferred; for the situation of the tumour is precisely the same in both cases, and the symptoms attending inflammation of the testicle, thus situated, exactly correspond with those of strangulated inguinal hernia. To these difficulties we must add, the surgeon is apt, at once, to set down the case as incarcerated hernia, a complaint with which he is familiar, and does not suspect the existence of a disease which must be extremely rare.—*Colles' Surgical Anatomy*.

The testicle partially descended at a period of life later than usual, may be mistaken for inguinal hernia: often a truss has been applied in this case. I have seen the operation for bubonocoele performed for the tumour of the testicle. The scrotum being empty of the testicle should put us sufficiently on our guard.—*Sir Charles Bell*.

Unusual reduction of the testicle into the belly; age of patient 25 years; instrument applied; no inconvenience followed.

CASE XLVII.—In the summer of 1835, while engaged in the application of an instrument in a case of ventro-inguinal hernia, of the left side, occurring in a gentleman aged 25 years, he accidentally slipped the testicle up through the external ring into the belly. Every effort was made to bring it down, but without success.

A few days after, I applied the instrument, which gave no pain, nor has he ever suffered any inconvenience from the newly acquired location for the testicle, or from the pressure of the instrument.

I shall here terminate my cases, having already continued this republication of the Reports, by notes and cases, far beyond my original intention. Many cases of cures of hernia in adults, but more particularly in children, could be added, as well as others of interest, bearing upon this very interesting subject.

If the notes and additional cases appended to a Report *so perfect in itself*, should be read with that interest which the subject seems to demand, when so great a portion of the human family are labouring under this afflicting malady; and should the life of even one of my fellow-creatures be saved, or his condition ameliorated, then will my labour be fully repaid, and I shall consider my compensation ample.

TABULAR STATEMENT OF 200 CASES OF HERNIA.

No.	Age in years.	Sex.	OCCUPATION.	Congenital.	Inguinal.	Right side.	Left side.	V. Inguinal.	Right side.	Left side.	Femoral.	Right side.	Left side.	Umbilical.	Ventral.	Irreducible.	Double.	Duration in years.	CAUSES, &c.
1	27	M	Merchant						1	1								7 years	Unknown.
2	8 mo	M	Child		1	1						1						7 months	Unknown.
3	25	M	Planter						1	1								12 "	Fox chase.
4	35	M	Merchant						1	1								18 "	Unknown.
5	3	M	Boy		1	1	1											12 years	Unknown.
6	80	F	Lady								1	1						60 "	Unknown.
7	2	M	Child		1	1												4 months	Fall down stairs.
8	57	M	Farmer		1	1												8 years	Lifting.
9	61	M	Boatman		1	1			1	1								2 "	Unknown.
10	27	M	Carpenter	1					1	1								Many	Unknown.
11	2 mo	F	Child	1	1	1													
12	60	M	Merchant		1				1			1						6 months	Costiveness.
13	3	M	Child		1													1 year	Coughing.
14	2	F	Child		1	1		1										18 years	Unknown.
15	27	M	Medical student						1			1						10 days	Dysentery.
16	25	M	Bank						1	1		1	1					110 years	Unknown.
17	23	M	Merchant						1	1								15 days	Unknown.
18	2	F	Child		1													18 months	Whooping cough.
19	30	M	U. S. Army						1	1		1						8 years	Unknown.
20	27	M	Engineer						1	1		1	1					14 "	Leaping from cars.

21	22	M	Carpenter					1	1				3 years	Lifting.
22	35	M	Sailor					1	1				1 month	Unknown.
23	65	M	Merchant					1	1				3 days	Unknown.
24	34	M	Shoemaker					1	1			1		Unknown.
25	33	F	Lady										20 years	Unknown.
26	28	F	Market-woman						1				10 "	Unknown.
27	48	M	Weaver										Many	Unknown.
28	6	M	Child			1			1				5 days	Fall.
29	60	M	Gentleman						1				20 years	Unknown.
30	26	M	Clerk			1			1				Many	
31	39	M	Engraver						1				15 years	Unknown.
32	57	F	Lady										20 "	Childbed.
33	30	F	Lady										7 "	Childbed.
34	25	M	Iron founder.						1			1	Many	Unknown.
35	50	F	Lady			1			1				2 years	Colic.
36	1	M	Child			1							6 months	Carrying.
37	21	M	Miller						1	1			2 years	Lifting.
38	2 mo	M	Child			1			1	1				
39	49	M	Physician						1	1			20 years	Unknown.
40	19	M	Farmer						1	1			5 "	Lifting.
41	36	M	Merchant						1	1			3 "	Unknown.
42	41	M	Artist										4 "	Unknown.
43	45	M	Shoemaker						1	1			5 "	Unknown.
44	37	V	Clergyman										3 "	Speaking.
45	5	M				1			1				6 months	Unknown.
46	23	M	Segar maker						1	1			3 years	Lifting 500 lbs. of tobacco.
47	47	M	Taverner						1	1			3 months	Unknown.
48	45	M	Gentleman						1	1				Lifting.

70	38	M	Organ builder	1	1	1	1	1	1	3 years	Plaining metal.
71	60	M	Farmer			1	1		4	"	Hard labour.
72	65	M	Servant			1	1		Many		Hard labour.
73	43	M	Tanner			1	1		2	"	Raising hides in tannery.
74	6 mo	M	Child	1	1				2 months		Unknown.
75	37	F	Boarding house				1	1	2 years		Lifting.
76	20	M	Carpenter	1	1	1	1		3	"	Climbing trees.
77	24	M	Merchant	1	1				4	"	Unknown.
78	25	M	Mason			1	1		Many		Lifting.
79	19	F	Lady				1	1	3	"	Unknown.
80	35	M	Victualler			1	1	1	1	Many	Lifting.
81	32	M	Merchant	1	1	1			1	R. S. 1 L. 5	Unknown.
82	31	M	Lawyer	1	1	1			16 years		Carrying a bag of grain up stairs.
83	28	M	Watchman	1	1				4	"	Blow over the head with door bar.
84	61	M	Gentleman	1	1	1			1	Many	Unknown.
85	30	M	Merchant						2 years		Unknown.
86	35	M	Carpenter	1	1	1			6	"	Lifting a trunk over his head.
87	32	M	Porter	1	1				2 months		Unknown.
88	45	F	Nurse	1	1				2 years		Fell on the rocker of the cradle.
89	10 m	M	Child						3 months		Lifting bag of oats.
90	70	M	Turner			1	1		10 years		Loading manure.
91	20	M	Farmer	1	1	1			2	"	Surveying in the forests
92	49	M	Surveyor	1	1				15 days		Unknown.
93	60	M	Pauper			1	1	1	1	Many	Hard labour.
94	45	M	Collier	1	1				3 years		Unknown.
95	39	M	Manufacturer			1	1		3 months		Fall.
96	3	M	Boy	1	1				2 years		Unknown.
97	18	F	Lady	1	1				Many		Unknown.

[illegible]

No.	Age in years.	Sex.	Occupation.	Congenital.	Inguinal.	Right side.	Left side.	V. Inguinal.	Right side.	Left side.	Femoral.	Right side.	Left side.	Umbilical.	Ventral.	Irreducible.	Double.	Duration in years.	CAUSES, &c.
147	2	F	Child															6 months	Unknown.
148	35	F	Lady					1	1					1				10 years	Childbed.
149	56	M	Navy					1	1								1	20 "	{ Ventro-inginal, from walking — Umbilical, unknown.
150	50	M	Lawyer															25 "	Riding on horseback.
151	65	M	Farmer					1	1									12 "	Thrashing grain.
152	36	M	Medicine			1	1											8 "	Dysentery.
153	20	F	Lady				1											10 days	Walking.—Unknown.—Unm'd.
154	30	M	Miller		1							1						2 years	Unknown.
155	25	F	Lady									2	1	1			1	18 and 2	Unknown.—Unmarried.
156	30	M	Army			2	1										1	10 years	Thrown from a mule.
157	25	M	Sea captain					1	1									6 "	Unknown.
158	12	M	Boy					1	1									2 "	Fall from a tree.
159	18	M	Bar-keeper					1	1									9 months	Unknown.
160	18	M	Merchant					1	1									9 "	Lifting packages.
161	1	F	Child															4 "	Crying.
162	2	Child			1													10 "	Unknown.
163	30	M	Brick-maker											1				6 "	Laborious exercise.
164	55	M	Medicine					2	1								1	15 years	Fox-chase.
165	32	M	Merchant					1	1									1 year	Unknown.
166	23	M	Ostler					2	1								1	1 "	Unknown.

No.	Age in years.	Sex.	OCCUPATION.	Congenital.	Inguinal.	Right side.	Left side.	V. Inguinal.	Right side.	Left side.	Femoral.	Right side.	Left side.	Umbilical.	Ventral.	Irreducible.	Double.	Duration in years.	CAUSES, &c.
193	50	M	Carpenter		1	1												8 years	Hard labour.
194	37	M	Merchant		1		1											14 "	Leaping a brook.
195	27	M	Innkeeper					1				1						15 "	Lifting trunks.
196	27	M	Clerk		1	1												6 "	Unknown.
197	45	M	Farmer					1	1									10 "	Lifting heavy weights.
198	60	M	Gentleman					1				1						Many	Unknown.
199	55	M	Mason					2	1	1								120 years	Hard labour.
200	42	M	Carpenter		2	1	1											10 "	Heavy lifting.
Totals,				15	86	64	30	104	63	50	17	7	10	13	1	1	38		

The following conclusions are deduced from the summary of the preceding Table.

Of 200 cases of rupture, 37 were double.

Of 37 cases of double rupture, 13 were ventro-inginal on both sides—13 were common inginal on both sides—2 were femoral on both sides—1 was ventro-inginal and femoral on the same side—2 were inginal on one side and femoral on the other—2 were ventro-inginal on one side and umbilical, and 4 were common inginal on one side and ventro-inginal on the other.

Of 237 ruptures, 15 were congenital—86 common inginal—104 ventro-inginal—17 femoral—13 umbilical—1 ventral, and 1 irreducible.

Those cases of herniæ where the bowel penetrated directly through the tendon at the external ring, and those also where the bowel appeared first at the internal ring, and finally became direct or nearly so from its repeated protrusion and dilatation of the orifice, are ranked under the head of ventro-inginal herniæ.—The greater number of ventro-inginal herniæ proves that the ventro-inginal truss is of more importance than either of the other instruments.

ON CIRSOCELE OR VARICOCELE.

Varicose Veins.—By surgeons, the veins are termed varicose when in a state of *dilatation*, attended with an accumulation of dark-coloured blood within them, the circulation of which is materially retarded in the vessels affected by a variety of causes.

This is a very common disease, and comparatively few persons escape it during life. It occurs more frequently in the young and vigorous. When veins are brought into this state, they are not only really enlarged, but are to all appearance elongated; and in addition to their irregularity, they exhibit a knotty, *vermiform*, cord-like appearance, and a livid colour, coiling upon themselves, and forming a considerable tumour.

Varices appear very frequently in the lower extremities, but are by no means confined to any one part of the system. The testicle and the spermatic veins are very susceptible of this form of disease. When the disease is confined to the *veins of the scrotum*, it is called *varicocele*; but when it is extended to the veins of the *spermatic cord*, it is then called *cirsocele*.

These two forms of disease are frequently spoken of under the same head, (*varicocele*,) and, for all practical purposes, this may be sufficient.

Causes of Varicoccle.—These are various—any thing

which prevents the return of the blood through the spermatic veins to the heart, such as despondency, warm weather, fatiguing walks, dancing, long standing, blows, sparring, lifting heavy weights, abuse of the organs in early life, leaping, running, jumping, and riding on horseback. Several of my patients during powerful exertion have complained of feeling something give way; pain followed, and, on examination, they found varicose tumours. It sometimes is the consequence of other diseases of the neighbouring parts, and I have not unfrequently seen it follow hernia humoralis.

Pressure upon the spermatic cord by a rupture, and more particularly by that of an ill-contrived and worse applied truss, is among the most frequent causes. Almost all the old trusses, whatever may be the nature of the rupture, press upon the external ring, and are, by their inventors, directed to overlap the "cross bone" (pubic bone). By this adjustment the cord is caught directly between the instrument and the bone. It there suffers compression, and a varicose state of the vessels is almost universally produced to a greater or less extent. Notwithstanding the truth of the position here taken, trusses have been constructed ostensibly to cure varicocele, but they all act in the same manner as those just described, and are only calculated to *exaggerate*, (which they most certainly do,) rather than to *relieve* the complaint.*

Symptoms of the Varicose condition of the Testicle or

* See Chase on Hernia, p. 187.

Cord.—This affection occurs more frequently in tall persons, and especially in warm weather. The first indication that the patient usually experiences is a sense of weight at the bottom of the scrotum, followed by a gradual enlargement, and *sometimes* accompanied with pain. This, however, is not invariably the case, for we sometimes find the disease making its first appearance at the abdominal ring; and under these circumstances it is often difficult to distinguish it from other affections developing themselves at this point. The sensation of heaviness increases; the scrotum becomes elongated; the pain continues along the rout of the cord, accompanied with increased warmth, till it reaches the abdominal ring. The whole cord becomes also very much enlarged; increasing while in an erect posture, but decreasing when in a recumbent position; while in the morning, if examined before rising, the disease will scarcely be perceptible.

Should the affection in this state be suffered to make unrestrained progress, the pain continues along the canal, even into the abdomen and loins: pain in the back is now produced, and also in the lower extremity on the affected side, and a sensation of lassitude is felt through the whole system.

The appearance of the testicle and cord has been compared to a variety of objects, but more particularly to a bundle of earth-worms. Varicocele, however, under the eye of those who are at all conversant with it, does not require the aid of these analogies to point out its distinctions from other diseases affecting similar

parts; for cases of this complaint by no means exhibit a uniform appearance, and those who are not familiar with it should not undertake its treatment. In fact, varicocele resembles nothing but varicocele.

This disease more frequently makes its appearance during the summer months, and it frequently disappears during cold weather.

A varicose tumour increases in size during the heat of the day, and also after a hearty meal.

A young gentleman who was labouring under hernia and varicocele, the latter disease being the result of pressure of the bowel on the cord prior to the use of a truss, called upon me on three successive days, after hearty meals, thinking that the bowel had escaped from beneath the truss. On examination, I found, on each occasion, the varicose tumour enlarged; but it invariably disappeared after a few hours, without requiring the removal of the instrument.

The testicle itself is rarely involved directly in this disease, yet it is not unfrequently the seat of severe lancinating pains, followed by a wasting of the organ and loss of its proper function. The disease is usually confined to the left testicle or spermatic cord, though not invariably, for sometimes it is seen on both sides, and sometimes on the right side only.*

* The left side is supposed to be more frequently the seat of this disease than the right, in consequence of the circuitous route which the blood from the left testicle takes, in its return to the vena cava.

The nature of the Disease, and the indications in curing it.—I have already stated that the veins, when in a varicose state, are enlarged, and apparently elongated; they almost always retain their retractile power, so as to resume their natural form and position when the causes of the disease are removed, and the proper treatment instituted.

The veins, like the arteries, are composed of three coats, but differ somewhat from the last mentioned vessels in their power of resistance. The external and middle coat of the arteries are more resisting than the corresponding coats of the veins, while the inner coat of the latter exceeds greatly that of the former. The middle coat is said to be sometimes found muscular. The veins are not so elastic as the arteries, for when left to themselves they collapse; but they possess elasticity to a sufficient degree to aid materially in the circulation of the venous blood: neither is there any doubt of their spontaneous powers of contraction, which may be shown, experimentally, in various ways. Puncture one of the large veins, and the blood will be seen to flow irregularly: apply cold to them, and you readily diminish their volume: include a portion of a venous trunk between two ligatures, puncture it, and it will empty itself speedily and completely.*

* We have reason to believe that the veins are contractile; and the possession of this property would be in accordance with their fibrous character. Broussais affirms, that this action is one of the principal causes of the return of the blood to the heart. He conceives, that the alternate movements of contraction and relaxation are altogether similar to those of the heart."—*Dunglison's Physiology*, p. 42.

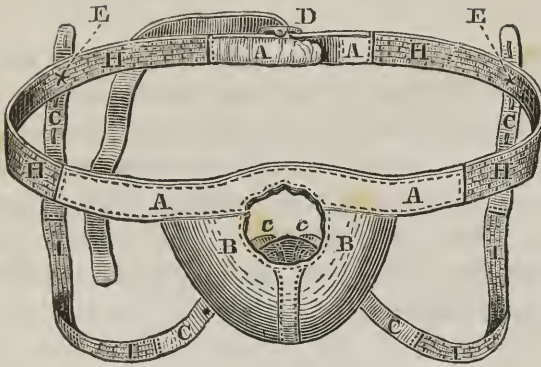
Now, having given some idea of the nature of varicocele, our next inquiry will be into the indications required to afford the most perfect relief, and, ultimately, cure the malady. In so doing, we have but three points to discuss: 1stly, In what situation shall we place the parts so as to secure their safe and easy position, and give them the greatest chance of recovery? 2ndly, By what mechanical apparatus can they be best retained in their position? 3dly, What other than mechanical means can be employed to advantage—the object being to place the parts in the situation that will give the veins the greatest amount of aid in dislodging their engorged blood, and allow them to contract permanently to their natural situation?

In answer to the first of these positions—it is evident that that position which will allow the veins to disgorge themselves of blood most readily and effectually is the best; and to effect this, they should be brought up and retained in close contact with the perineum under the root of the penis, so as to lessen, as much as possible, the pressure of the column of blood.

The second question will be answered presently.

The third and last may find its reply in a short account of the various operations for the relief of varicocele, and a notice of external application to be employed in the use of the following instrument.

CHASE'S SUSPENSORY.



Description of the New Suspensory Band.—A, A, A, A, The band or belt of the suspensory, which passes around the body and is secured by a buckle at D.

B, B, The sac to retain the testicles.

C, C, C, C, The thigh-straps, which are attached at one extremity to the lower and posterior part of the sac at c c, pass beneath the sides of the perineum and round the base of the buttocks, continue upward on the outside of the nates, and behind the trochanter major, to be attached to the band at E E by means of buttons.

D, The buckle of the band.

E, E, The situation of the buttons for the attachment of the thigh-straps.

H, H, H, H, India-rubber webbing introduced between the more unyielding parts of the suspensory belt.

I, I, I, I, India-rubber webbing constituting the middle part of the thigh-straps.

ON THE USE OF THE PARTICULAR PARTS OF THE SUSPENSORY.

1st. *Of the Bag.*—This is the most essential part of the instrument. It should be made of the most inelastic material that can be obtained, (linen,) and should be adapted as accurately as possible to the shape of the

scrotum, when brought up into close contact with the body.

2nd. *Of the Belt.*—That part of the belt which is adapted to the front of the body, should be also composed of linen; because, to this is secured the bag, which requires to be attached to an inelastic tissue in order to give firmness and certainty to its shape and position. Linen should also compose those parts of the belt which pass behind the spine and over the back of the sacral bone.

The intervening parts of the belt marked H, H, H, H, which correspond with the sides of the pelvis, are made of India-rubber webbing. This arrangement allows the belt to expand sufficiently to adapt itself to the abdominal muscles in respiration, and relieves the body from painful pressure.

No one who has worn a suspensory of old construction, need be reminded of the very great inconvenience and annoyance which he has suffered from a non-elastic bandage passing around the pelvis.

Of the thigh-straps.—These straps are intended to keep the inferior and posterior parts of the sac drawn upward and backward, so as to bring the whole scrotum into close contact with the perineum.

Those parts of the thigh-straps which are attached to the inferior part of the sac, and also the ends which are secured to the belt, are made of linen, the inter-

vening portion being constructed of India-rubber, as mentioned in the description of the figure.

Great annoyance is always felt from the thigh-straps, which are entirely composed of non-elastic material. It is ascertained to be requisite that the straps should expand and retract sufficiently to adapt themselves to the various motions and positions of the thighs.

On the manner of applying a Suspensory, and cautions to be regarded.—To give directions relative to the application of an instrument apparently so simple in its construction, may appear a work of supererogation to those who look upon the subject *theoretically*; but to those who have had occasion to treat a varicocele, or who have laboured under the disease, no apology is necessary for this minuteness.

The patient should be placed in the recumbent position, which favours the return of the blood. The scrotum should be raised and drawn forward by the surgeon with one hand, and the remaining part of the blood pressed from the spermatic veins into the abdomen by gentle friction with the fingers of the other hand, performed along the route of the cord.

When this disease is of long standing, and the veins have become greatly enlarged, the danger attending the return of the blood to the circulation is imminent, and should be performed with great caution. A case occurred in the hands of Dr. R. COATES, in which the patient was put in great danger of death for more than

an hour. This patient has since placed himself under my care. He had suffered greatly from varicocele for several years; had worn the old suspensories with little if any relief, and in the days of castration would have been considered a fit subject for the knife.*

The band of the suspensory should now be carried around the body, drawn moderately straight, and secured to the buckle; the penis passed through the ring, and the testicles placed within the sac. The thigh-straps are then brought around, and buttoned to the belt as already described. The patient should now be requested to rise; the different parts of the suspensory band adjusted; the body-band tightened or loosened, as occasion may require. The tension of the thigh-straps also should be carefully regulated: they should not bind the limbs, yet they should draw the lower and posterior part of the sac far back upon the perineum. The sac, which is by far the most important part of the apparatus, should vary in size, but not *in shape*, according to the size of the testicles in each individual. It should be accurately fitted to the scrotum, and should keep these organs closely in contact with that part of the perineum just posterior to the penis.

* In the case of a young gentleman labouring under varicocele recently under the care of Dr. R. COATES, the reduction of the blood contained in the tumour was followed by symptoms so alarming, that this surgeon considered the patient in imminent danger of death for more than an hour. There were repeated attacks of profound syncope, and occasional slight convulsions, which Dr. COATES attributed to the action of coagula or hypercarbonated blood on the heart and nervous system."—*Chase on Hernia*, p. 188.

By this arrangement the spermatic veins are enabled to discharge themselves, and no blood is permitted to collect or to be retarded in its circulation.

Directions for use.—As before stated, this instrument should be applied while the patient is in a recumbent position, and it should not be removed except when he is in this situation. It must be worn constantly until relief or a cure be effected, as a deviation from these rules would permit the testicles to fall, the blood to fill the vessels again, and a return of the disease would inevitably follow.

On the old Suspensories.—The old suspensories partake nearly of the same general form, and generally fail to accomplish the very object for which they were intended, viz: *to support the testicles.*

The surgeon who has had experience in the treatment of varicocele, need not be reminded of the very great mortification he has often felt after employing one of these instruments to no effect, nor the patient of the disappointment under which he has daily laboured, while expecting relief from their use.

The sac, which is intended to sustain the testicles, is made of materials evidently calculated for distension, which, when worn, permits the scrotum to fall almost as low as it did prior to the treatment. Under these circumstances, no benefit can possibly result from the use of such a bandage.

The band which passes around the body is unyielding, which is another source of great annoyance to the patient, from its constant pressure.

The thigh-straps are also constructed of the same material, unyielding in its nature, and consequently binding upon the limbs when in a flexed position.

There is a form of suspensory which is imported to this country from France and other parts of Europe, called the *French Suspensory*. The sac of this apparatus is sometimes made of cotton, but more frequently of silk. This is far inferior to the American article, notwithstanding which, many of them are sold, and at a very high price.

It may be justly remarked in this place, that most of our instrument-makers frequently throw articles of a very inferior manufacture into the market, partly on the score of economy, and partly to cater for a vitiated taste in favour of foreign articles; but this is a gross error.

Proposed means for the Cure of Varicocele by Operations.—There are several modes of operating proposed for the cure of this disease, each maintaining a certain amount of reputation. It is not my intention here, to give a detailed account of any of these plans, but merely to notice each in passing.

Compression.—This mode of treating the disease was introduced by M. BRESCHET, of Paris. It has been

practised by him in the following manner: the veins are seized between two pieces of metal which are held together by a screw, the object of the operator being to bring on inflammation and obliteration of their cavities.

Dr. WARREN, of Boston, who has repeated these operations in the Massachusetts General Hospital, declares, that he never could prevail on his patients to keep the instrument on long enough to effect the desired object. "The last," says he, "to whom it was applied, took off the screw a short time after its application, walked out of the hospital, and has never been heard of since."

This is precisely what we should expect, from the impossibility of applying the instrument without including the nerves which pass down to the testicle.

I have seen patients who, having submitted to this operation, described the pain as being beyond endurance, one of whom has placed himself under my care.

Compression of the vessels of the cord has been resorted to, for the cure of varicocele, in the Pennsylvania Hospital, but without success. I have seen the operation attempted in one case only, but the patient threw off the instrument.

Ligature of the Spermatic Veins.—This consists in passing a ligature around the spermatic veins, excluding the vas deferens. Aside from the danger of inflamma-

tion of the veins in this operation, should the artery be included in this ligature, a wasting of the testicle and consequent destruction of the organ will follow. Dr. WARREN, of Boston, has performed this operation once; he excluded the vas deferens, but does not give us any account of the effect produced on the testicle, or whether the artery was included in the ligature. The same operation has been frequently performed in the United States, but no accurate accounts of the results have been made public.*

Ligature of the Spermatic Artery.—Passing a ligature around the spermatic artery for the cure of varicocele, has been performed and reported in this country, but I am induced to believe, with no very great success, as the practice has not, to my knowledge, received the sanction of the profession, nor has it attracted that attention which the subject would have demanded had the desired relief been afforded. The gentleman last quoted, in his late work on tumours, says: “one patient who had been operated on in this way, came to me afterwards, having received no benefit.”

* “Mr. Home has tied up the spermatic vein for the cure of this disease, but the symptoms consequent were exceedingly severe, and unless in cases of enormous distension of the veins, the operation ought not to be performed.”—*Dorsey's Surgery.*

“It was formerly the practice, when the veins were in a varicose state, to tie and divide them; but it is a practice replete with danger; therefore let me exhort you never to sanction it. Another overwhelming objection to the operation is, that when it does not prove fatal, its ultimate effects are perfectly nugatory.”—*Sir Astley Cooper's Surgery, with notes by Castle.*

Excision or Extirpation of the Spermatic Veins.—This operation consists in laying the skin open along the tract of the cord, and removing a portion of the vein entire. Should hemorrhage follow, ligatures are to be employed.

This operation is, perhaps, safer than any other that has been proposed; but the objections to it upon plain anatomical principles, whether the ligature be employed or not, will be stated hereafter.

Dr. WARREN, of Boston, has performed this operation several times; but in one instance sloughing followed, and the operation resulted in the loss of the testicle.

The simple division of the vein with the knife has also been proposed.*

Removal of the Testicle.—During my pupilage I saw castration twice resorted to, for the purpose of giving relief in this affection. In one instance, both testicles were removed; in the other, one only.

In the first instance, no support was ever given to the parts prior to the operation!

* "Extirpation of the diseased veins has been practised by some modern surgeons, in cases of cirsocele attended with severe pain and extraordinary enlargement of the cord and testicle. I have seldom met with cases requiring an operation of the kind."—*Gibson's Surgery*.

The impression made upon my mind while witnessing these operations will never be erased, and has served not unfrequently to bring up the subject of varicocele, in the course of my reflections.

The removal of the testicle* was common among the older surgeons, and patients have frequently submitted to this operation for the cure of hernia as well as varicocele. I never saw a case of varicocele justifying or requiring an operation of any kind.

As the disease under consideration is closely allied to hernia, and not unfrequently accompanies it, and as it is so very commonly mistaken for it, I have been consulted, during the last five years, in a great many cases of varicocele. Many of them have been from a distance, and not a few, very difficult in their nature, where the veins were greatly distended. My success in affording relief will be given hereafter.

Upon a careful review of the various operations which have been proposed for the cure of varicocele, it is evident that no certainty of such a result has been afforded; that the danger attending all these operations is evidently more to be regarded than the difficulty attending the disease itself. This danger does not necessarily involve the life of the patient, yet the ill

* This is one of the most simple operations in surgery; but before it is undertaken, be cautious that the disease does actually require to be removed, and particularly bear in mind the circumstances which should regulate its removal.—*Sir A. Cooper's Surg., with notes by Castle.*

consequences resulting from inflammation of the veins are well known to all surgeons.

Anatomically;—it is evident that throwing a ligature around the spermatic artery, thereby cutting off the blood from the testicle, must immediately produce a loss of its function, and more remotely endanger the destruction of the organ itself. Those who advocate this mode of treatment may, perhaps, take caution from the fate of Professor Delpech, of Montpellier, who was assassinated by a man who had lost the testicle by an operation.

In addition to immediate results of a serious character, the application of ligatures to the veins of the spermatic cord produces, ultimately, the same consequences with the ligature of the artery; because it suppresses, with equal certainty, the nutrition of the organ by arresting the circulation within it.

The means employed by myself for the relief and cure of varicocoe consist in the mechanical measures aided by local treatment, without operation.

The instrument as now employed, and figured at page 223, has been used by several gentlemen in this city for some time past, and it has given universal satisfaction. I have never met with any case, however obstinate in its nature or painful to the patient, in which it was used without relief.

The gentleman who is the subject of the note, p. 218, is now wearing the suspensory, and informs me that

he is free from pain, and suffers no inconvenience from his disease, and that the veins are diminishing in size.

The prospect of cure in cases of so long standing, and when the veins are so enormously distended, will be spoken of hereafter.

In the early part of March, 1837, a gentleman consulted me respecting a varicocele under which he had laboured for about two years. He is tall and erect in person, about six feet in height, and muscular. The tumour was of moderate size, exhibiting the appearance of a small omental protrusion.

I applied one of the suspensories, which he wore constantly for four months, adhering strictly to my advice, and never removing it except when in the recumbent position, for the purpose of bathing the parts, or for changing the instrument. The vessels were invariably found as free from blood when the instrument was removed, as those on the opposite side, and were observed to have contracted from time to time, under its use.

September 20th.—I have examined this case on several different occasions since the removal of the suspensory, and also to-day. There is no appearance of the return of the disease; the side which was the seat of the affection cannot be distinguished. The gentleman informs me that he has never felt any pain in the cord since the first few days of the use of the suspensory.

This patient has been examined by Drs. R. COATES, BOND, WARREN of New Orleans, and GAGE of New York.

In the month of June of the present year, Mr. —, a gentleman in good general health, and unusually robust and muscular, requested my advice respecting a tumour in the scrotum, which he thought was a rupture.

I found him labouring under varicocele of the left spermatic cord. The disease had been obvious but a few days, and was supposed to have been produced by standing at the desk. He was by profession an accountant.

I applied my new suspensory, directing him to wear it day and night. I also ordered him to remove the suspensory after retiring, to bathe the part with cold water every night, and to reapply the instrument after this operation.

He has used the instrument up to this date, (Sept. 17th.) He has experienced no pain nor inconvenience from it excepting in one instance, when some chafing was produced, owing to his having drawn the body-band and thigh-straps too tight. I directed them to be loosened, and the parts dusted with carbonate of zinc, and this difficulty soon disappeared. He is now believed to be cured.

April 3d, 1837.—Mr. —, aged 32 years, had laboured under a varicocele of both sides for twelve years.

He is accustomed to hard labour and heavy lifting, but is not aware that his disease was produced by over-exertion.

His scrotal tumour resembled a hernia of uncommon size, and had none of the appearances usually described in the works of various surgical writers as characterizing varicocele: in short, it could hardly be supposed that the veins could tolerate such distension.

This patient had suffered greatly from pain in the testicle, which had extended up the cord into the abdomen, and had often confined him to his bed.

The blood in the veins was carefully returned to the abdomen, and the instrument was applied without producing any unpleasant effects, although such a result was anticipated.

I can hardly expect a cure to follow the use of the suspensory in so difficult a case as this; yet the venous tumour has decreased considerably under the treatment.

He has bathed the scrotum and cord with iced water daily since the first application of the suspensory. The testicles are not in the least concerned in this disease, but are unusually large, and their gravitation has, no doubt, aided in increasing the severity of the affection.

He has worn one of the common suspensories for

several years. I removed it. It did not keep up the testicles.

On the 2nd of May, 1837, Mr. —, aged 21 years, about five feet three inches in height, of good general health, and accustomed to active exercise, was assisting in loading timber; and, while bearing a great weight, distinctly felt something give way in the cord near the testicle. He immediately examined the part, and for the first time discovered a tumour. He consulted a practitioner in the city, who referred him to my care.

Upon examination, I found a small varicose tumour. I applied a suspensory which he has worn constantly, and ordered bathing to be employed in the manner directed in other cases.

The varicose tumour has entirely disappeared. No relaxation from his usual business habits has been required.

During the year 1835, Mr. —, aged 21 years, six feet in height and muscular, was attacked with a swelling of the right testicle, which yielded to appropriate treatment, but was followed by a swelling of the epididymis and varicocele of the cord. Not finding relief in the city immediately, he was induced to go to Europe for medical aid. He remained in France and England until about the first of August, 1837, when he returned to Philadelphia with his varicocele in no better state than it was at the moment of his departure.

The treatment recommended by European surgeons was in accordance with that usually employed in this country—the use of the cotton or silk bag suspensory.

On the 8th of September he consulted me in his case. I found the veins still enlarged, the epididymis swollen and very tender on pressure. He was wearing one of the French suspensories before spoken of, and now in my possession, which did not prevent the testicles from falling as low as when the article was removed.

In addition to this difficulty, he had become ruptured on the left side, and was wearing a German instrument constructed on the plan of the old trusses figured in my work on *Hernia*, p. 45.

He was unable to attend to his business, the pain in the testicle being constant, and extending up the cord to the abdomen. It had also been supposed that the kidney of the same side was affected, from the pain which he always felt in the lumbar region. This pain was increased when any jar of the body was produced by accidents, such as stepping down a curb-stone while walking in the city.

Sept. 9th.—I applied a suspensory, which brought the testicles in close contact with the body at the root of the penis. I ordered the parts to be bathed with lead water every morning and evening, while the patient was in the recumbent position.

Sept. 11th.—He has had but little pain in the side, and none in the testicle to-day. He walks with caution.

13th.—I drew the body-band and thigh-straps somewhat tighter than at the first application.

15th.—He is now able to walk with a free step, and with ease. The epididymis has diminished to nearly its usual dimensions; the pain in his side has left him, and he has joined his partner to-day in the active business of a wholesale and retail house in this city. He is also under treatment for his hernia.

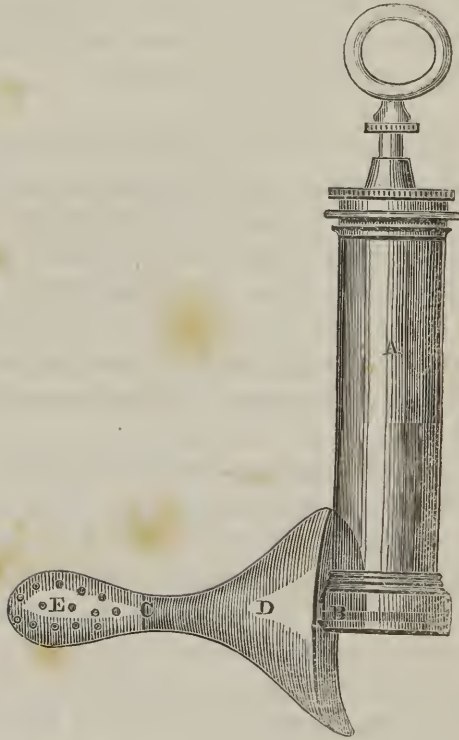
It is common to meet with patients who have suffered and are still suffering under this disease to such a degree that they are incapacitated for active business. Such patients I have never failed to *relieve*, and generally in a few hours after the application of the suspensory. It may be considered as established, that all cases of this nature *can be relieved, and the patient made comfortable by the use of a proper suspensory.*

It may naturally be questioned how large a proportion of patients will be permanently cured, and what constitutes a cure: I may reply, that when the disease has been produced from any cause calculated to injure or destroy the contractile powers of the veins, or when the veins have become greatly distended for a series of years, freedom from pain and comfort to the patient is all that can be expected. But when the disease is of short duration, the valvular arrangement in the veins entire, and the veins themselves not excessively distended with blood, then, not only relief, but a radical cure can be confidently looked for, under the use of proper instruments and appropriate treatment.

From the American Journal of the Medical Sciences.

IMPROVED VAGINAL SYRINGE.

BY HEBER CHASE, M. D.



The superiority which this instrument possesses, consists in its perfect adaptation to the anatomical form of the organs of generation.

A, The cylinder, is about five inches in length, with a calibre of one inch. Projecting from its lower extremity, B, at an angle of about eighty-five degrees, is a tube of one inch and a half in length, and six lines in diameter—terminating at C by a male screw in the shield D—now to be described.

The shield is of a conoidal form, produced considerably near the truncated summit, and laterally compressed; about four inches in length, half an inch in diameter at the apex, and has about three inches vertical and two inches transverse diameter at its base. The superior extremity of the vertical diameter rests against the cylinder of the instrument, while the inferior extremity is carried backwards and downwards so as to press on the perinæum a few lines posteriorly.

Upon the extremity of this shield is placed an ivory tube, E, extending one third of its whole length. This tube, from its connexion with the shield at C, is gradually increased towards its extremity, and terminates with a diameter of ten lines, where it is perforated by from twelve to fifteen holes all around its bulbous extremity. The ivory tube may be removed from the shield at C, where it is attached by means of a screw. The shield itself may be removed from the instrument in the same manner, and at nearly the same point.

Directions for use.—The bulbous extremity of the instrument should be introduced into the vagina and carried backwards and upwards nearly or quite to the

os uteri, the base of the shield closing the vagina at its orifice. When the contents of the syringe are thrown into the vagina, the fluid, of whatsoever nature, is projected not only against and around the os uteri, but cleanses also, by means of the numerous orifices in the bulb, the other parts of the canal, while the shield prevents its escape.

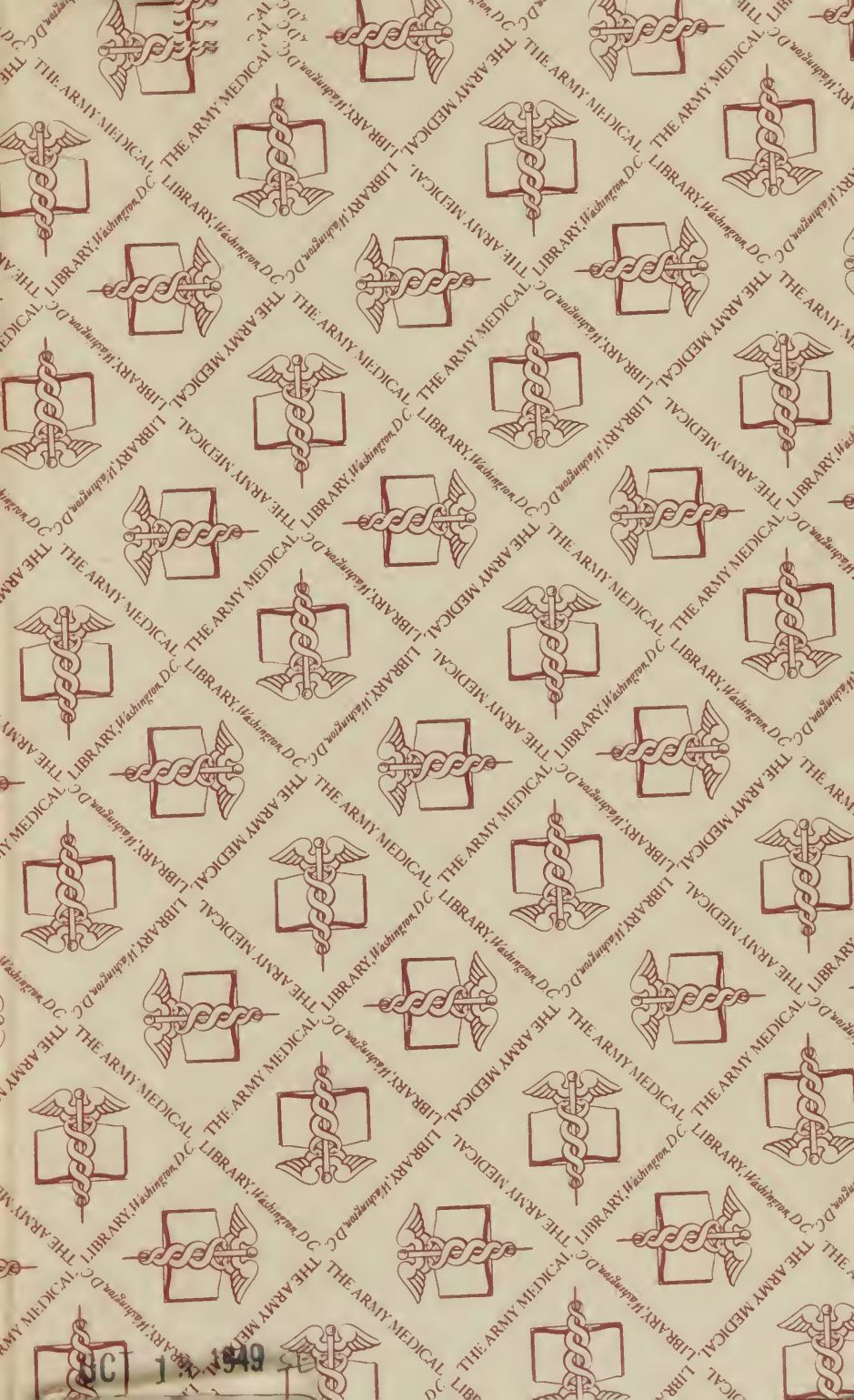
The advantages arising from such a combination of parts in this instrument, will be seen at a glance by the practitioner; and, aside from the good resulting from keeping the organs in a cleanly state, great advantage will be derived in disease of those parts by the use of medicinal liquids, which can be thus applied with sufficient force to reach all parts with certainty.

There is evidently a want of attention on the part of females in the middle and lower walks of life in keeping the urino-genital organs in a healthy clean state; and there can be little doubt that prolapsus of the uterus, of the first and second degree, may take place from this inattention, as the organ is often restored to its pristine state by rest, frequent ablutions, and the daily removal of those viscid secretions which must have more or less influence in debilitating the parts. With these precautions, and the use of cold and stimulating injections, the vagina resumes its tone, and the uterus again receives proper support.

The syringe is made of the usual material, (pewter,) with the exception of the bulbous extremity of the shield, which, as before stated, is of ivory. In manu-

facturing the instrument, care should be taken that the shield be highly finished, and the holes in the bulbous extremity be made smooth, so that no friction upon the internal parts may follow its use. Ivory is far preferable to bone or other substances for forming the bulb, from the facility with which it may be polished.





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